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THE  
**JOURNAL**  
OF  
**THE ASIATIC SOCIETY**  
OF  
**BENGAL.**

EDITED BY

JAMES PRINSEP, F. R. S.

SECRETARY OF THE ASIATIC SOCIETY OF BENGAL; HON. MEM. OF THE AS. SOC.  
OF PARIS; COR. MEM. OF THE ZOOLOGICAL SOC. OF LONDON, AND OF THE  
ROYAL SOCIETIES OF MARSEILLES AND CAEN; OF THE ACADEMY  
OF NATURAL SCIENCES OF PHILADELPHIA, &c.

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VOL. V.

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JANUARY TO DECEMBER,  
**1836.**

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"It will flourish, if naturalists, chemists, antiquaries, philologers, and men of science, in different parts of *Asia*, will commit their observations to writing, and send them to the Asiatic Society at Calcutta; it will languish, if such communications shall be long intermitted; and will die away, if they shall entirely cease."

SIR WM. JONES.

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1836.







THE

JOURNAL

OF

THE ASIATIC SOCIETY

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BENGAL.



VOL. V.





## PREFACE.

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OUR aspirations on launching a fifth annual volume of the Journal into the ocean of literature are no longer tremulous from a diffident anxiety as to its reception ; the tide of popular favor, or at least the diminutive wave of it which reaches the secluded estuary of oriental research, has buoyed us up with the most flattering encouragement, and an increasing body of constituents has still pressed forward to freight our humble bark with the productions of their industry and talent. To extract any of the too complimentary phrases of our correspondents in Paris, Vienna, and London, would be egotism ; and we must not forget that a proportion of their praise may be merely stimulatory—inciting us to take advantage of the golden opportunities commanded by our position at the emporium, to amass a rich cargo for their more deliberate and erudite discussion hereafter. Our errors also have not escaped their due measure of criticism, but even thus they have been productive of a good effect in drawing forth more correct information from other sources. The commerce in which we are engaged, to continue the metaphor in the terms of a late French prospectus, “ *multipliera le capital de la science comme l'autre commerce multiplie celui du numeraire.*”

However we may thus boast of having added to the stock of knowledge, we fear the “ *capital du numeraire*” has but little connection, beyond the analogy, with the out-turn of our speculation ; although, if the pecuniary prospects of the Journal are not much bettered this year, we have none to blame but ourselves for the unpromising aspect of our account current !

By increasing the letter-press more than 100 pages, and the plates in proportion, we felt we were exceeding the bounds of caution ; yet we could not resist the attempt to keep pace with the communications entrusted to us for publication, even at

some sacrifice and risk. Had our edition been sufficiently extensive to allow a large reserve for future sale, there might have been hopes of retrieval—but the 500 copies have all disappeared, and of our early volumes it is almost impossible now to procure a copy. The only method, then, left to meet this difficulty, is to levy a heavier assessment on our supporters for the future; and to this step, however reluctantly, we shall be obliged to resort from the beginning of the year 1837, still always adhering to our engagement of giving the maximum of matter for our means, and reminding our subscribers that we are not in fact heightening our charge, but enlarging our work; seeing that from 32 pages we have gradually augmented the monthly quota to 80, a quantity which experience has proved to be more than can be covered by a rupee subscription. Our rates from 1837, therefore, will be  $1\frac{1}{2}$  rupee per number to subscribers, and two rupees to others. The pecuniary details on which this measure is founded are as follows:

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	Co.'s	Rs.	A. P.		Co.'s	Rs. A. P.
To Balance due 1st Jan...	675	3	7	By Collections in 1836,...	4319	0 0
To Establishment one year,	175	7	0	By Asiatic Society for co-		
To Postages, .....	143	14	3	pies supplied to Mem-		
To Binding, .....	209	4	7	bers in 1835, .....	1088	0 0
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graphs, .....	1566	5	0			
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for 1836, .....	5221	0	0	1836, in Calcutta, ....	960	13 3
				Ditto Mofussil, .....	1100	0 0
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If, in our last volume, we could not refrain from noticing, as the most prominent object of interest in its contents, the suspension of oriental publications by the British Indian Government, and the general discouragement under which oriental studies were doomed to languish; we must not on the present occasion omit to make honorable mention of the patronage and

favor which has once more dawned upon science and literature in India under the present administration. The proceedings of the Asiatic Society, last year so full of painful discussion and unsuccessful appeal, this year shine forth with tokens of distinguished consideration. Consulted on the merit of propositions connected with historical research in the Peninsula and in Ceylon, its recommendations have met that attention which dignifies its proceedings, and tends more than any thing else to render it a substantive and useful institution. The sanction of its auspices has been courted, and has been extended beneficially to publications of great magnitude and importance. It has itself engaged in a new sphere of operations, devolved upon it by the discussions of last year, which promises, by a judicious combination with the sister Societies of France and England, to become equally advantageous to the European scholar, and profitable to itself. The Society of Paris has been the foremost to volunteer its co-operation in the completion of the series of suspended oriental works; but we have reason to know that the Royal Asiatic Society of London has not espoused their cause less warmly or less successfully, although the unavoidable delays of references to high authorities have prevented our yet reaping the fruits of their influence and intercession.

Many will consider with ourselves that the publication of a full edition of the oriental classics is a perfectly legitimate branch of labour for an Asiatic Society, and they may hope to see it permanently continued under endowment and protection of the Government itself.—It may indeed be regarded as a judicious modification of one of the earliest intentions of the institution promulgated in July, 1806, but hitherto left a dead letter on its minutes, “that a series of volumes, to be entitled BIBLIOTHÈCA ASIATICA, be published by the Society distinct from the *Asiatic Researches*, containing translations of short works in the Asiatic languages, and extracts and descriptive accounts of books of greater length, gradually extending to all Asiatic books deposited in the Society’s library, and even to all works extant in the languages of Asia.”

The translation and critical examination of Oriental works at the present day can be better undertaken by the distinguished

professors and philologists of Europe, and the only department of which we can hope to relieve them, with any chance of success, is the collection and correct printing of original texts through the supervision of our native Pandits and Maulavis. We therefore hope to see fresh volumes put in hand now that the series transferred by the Committee of Education is so nearly completed; and we would respectfully suggest, that the Government should make over to the Society all of the Sanscrit, Arabic, and Persian works that have hitherto issued from the Education Press, in order that one system of distribution and sale may be regulated for the whole series; and that, under the name of the *BIBLIOTHECA ASIATICA*, this body of Indian classical lore may be encouraged and regarded in the light of a national undertaking, entrusted merely to the vigilant superintendence of the Society as the appropriate organ of their publication.

But we are dwelling too long on a favorite project, and have but little space left to allude to the equally prosperous fortune of the natural sciences during the present year. The sincere votary of science cannot have witnessed without pleasurable anticipations the introduction, altogether novel in this country, of the delightful and instructive experiments of natural philosophy among the social recreations of Government House. At these parties may be kindled into action many a dormant disposition to cultivate the sciences that has hitherto but wanted such a stimulus; and the community at large may learn to appreciate the studies they have been accustomed to eschew as vain or recondite, by witnessing their practical application and attractions. We have heard it suggested as an improvement on the plan adopted by the illustrious Patron of the Society, to hold these soirées directly at the Society's museum, where the objects to be explained or exhibited might be prepared more at leisure, and where they would remain classified with others in the same collection;—others again have advocated the giving of a more decidedly lectural character to the evening's exposition. In London, where the President of the Royal Society holds similar meetings, his visitors are already well grounded in the subjects treated of, and need but a glance at any new invention or experiment to comprehend its drift: but



in India the majority have not enjoyed the same opportunities, and their curiosity is merely raised without hope of entire satisfaction. But against this view it may be urged that a monthly lecture would be but a tardy mode of communicating knowledge, more especially if the subject were to be changed on each occasion. A course of lectures might be a good succedaneum to the system, but the spirit of the monthly re-union must be general and exhibitory, to answer the object intended.

Again we are insensibly falling into a review of matters beyond the proper scope of a Preface, which should confine itself to the contents of the volume it precedes, or to the mutual concerns of the editor and his constituents.

On the cover of more than one monthly Journal we have already explained to what extent we have been enabled to increase the number and accuracy of our lithographed plates this year, by putting in requisition the talents of our most useful friends. When the facilities of drawing on transfer paper for lithographic printing become more generally known, we may expect still further advantage from its adoption by travellers, engineers, botanists, and naturalists, who are, or ought to be, artists also. It is now known from actual experience that a transfer drawing, packed in a tin roll, may be subjected to a journey of 1000 miles, either in the hottest or the dampest period of the year with impunity. Most of the imperfections in the plates of the Sewalik fossils are due to want of care in passing them on to the stone, rather than to imperfections in the original drawings.

Some confusion has arisen this year, in the numbering and placing of the plates, from continual and unavoidable postponements which it is needless to particularize. One plate (of the *Bhitari* inscription) has been reserved for the ensuing volume, that full justice may be done to the able elucidation of its important contents. And here we may be allowed a moment's exultation at the highly curious train of discovery, connected with this monument, which has been developed in the pages of the Journal. Not only has a dynasty before wholly unknown to the Indian historian, been traced by coins and inscriptions through seven generations in its own line, but two collateral alliances with other reigning princes

have been brought to light: while extracts from ancient Chinese authors, independently scrutinized in Europe, have helped to determine their exact chronological epoch.

In numismatic research discovery has been no less rife. The theory of a Grecian origin has been extended to various other series of Hindu coins—and the only one (the *Varáha* series) which remained of a doubtful source, has recently been traced in a most satisfactory manner to the Sassanian coinage of Persia, as will hereafter be shewn. We may here correct an ignorant error into which we have fallen in describing the legend of Doctor SWINEY's coin of AGATHOCLEA—giving the epithet *θεοτροπη*, as if derived from *τρεπω* instead of *τρεπω*; to this our attention has been called by several correspondents—and we therefore thus conspicuously acknowledge our blunder. The true meaning of the epithet (written *θεοτροπου* though united to *βασιλισσας*) we conceive to be “godly-dispositioned.”

We must also caution our readers against implicitly adopting our version of the Bactro-Pehlevi character—for we are now in possession of the comparative alphabet lithographed by M. JACQUET, which differs in many respects from our system, grounding it upon the Syriac instead of the Zend.—Not having yet seen the author's memoir on the subject, we are unable to make known his system, although we cannot doubt its superiority to our crude attempt.

In fossil geology one immense step has been made this year, by the discovery of the remains of a quadrumanous animal, the nearest approach to the human being that has yet been found in a fossil state in company with the extinct monsters of primeval antiquity. This important addition has enriched the Dádupur museum; but no less interesting have been the additions to its worthy rival the museum of Seháranpúr. It is perhaps right to explain how it has happened that the papers of Lieuts. BAKER and DURAND have mostly appeared in the journal, while those of Dr. FALCONER and Captain CAUTLEY have graced the new volume of the *Researches*. This selection was made from no difference in the relative value of these most interesting papers, but solely to accommodate best the drawings which accompanied them. We hope at some future period, to see the whole series collected together into a com-



plete and luxurious work on the fossil osteology of the Himálayan range ; but such an undertaking should await the exploration of the whole line, and should be made a national concern. At present the great fear is, lest the quantity of specimens dispersed in private collections on all sides, may deprive us of many fragments requisite to work out the forms of the curious new animals disinterred from this vast cemetery of the ancient world.

We have partly redeemed our promise to our meteorological contributors : sufficiently so, we hope, to revive their exertions, and procure us a combined series of observations in different parts of India for the coming year, more extended than the comparative tables we have now published. We regret having been unable to supply Barometers to the numerous applicants who have volunteered to use them. The duty now levied on philosophical instruments, will tend still more to check their importation.

Our readers will now readily excuse the absence of articles on the progress of the sciences in Europe, since that department has been zealously pursued by another periodical of extensive circulation, in consequence partly of our neglect of it ; and a third rival has recently entered the field under promising and powerful auspices. These have so fully made known many local inventions of scientific interest, that we have less regretted our inability to find space for their re-insertion. We would, on no account, however, wish to confine our pages to subjects more strictly Indian ; on the contrary, we shall ever study to infuse into them a pleasing variety of original information on all subjects, of man's performance or nature's production, within the wide range prescribed to us by our allegiance to the Asiatic Society.

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
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# ERRATA.

In the Journal for May, 1834, page 253, *for* '580' *read* 'minus 58°.'

In the No. for Dec. 1835, page 655 et. seq. the title of the Usbeck chief is printed WAUG, instead of WANG, or . The term is rendered by the Missionaries *regulus*, and is perhaps equivalent to *Rāja* under the Mughal governments.

In the same volume, page 615, *for* 'Zenophon' *read* 'Xenophon.'

Page 30 line 2 of note, *for* 'preferred,' *read* 'postponed.'

„ (et passim) *for* 'Sangata,' *read* 'Saugata.'

Page 30 line 3 of note, insert 'this' before 'appears.'

„ 31 „ 9 *for* 'exotic,' *read* 'the exotic origin of Buddhism.'

„ 32 „ 18 *for* 'Bodhi,' *read* 'Bodhi.'

„ 34 „ 8 *for* 'Sraxaka,' *read* 'Sravaka.'

„ 36 „ 6 of note, *for* 'E. G. Elphinstone,' *read* 'e. g. Elphinstone.'

„ 41 „ 29 *for* 'shells,' *read* 'cells.'

„ 42 „ 21 erase 'on' after the semi-colon.

„ 44 „ 44 *for* 'palatial,' *read* 'palatine.'

„ 47 „ 27 *for* 'this,' *read* 'these.'

„ 57 „ 48 *for* 'in vertical plates,' *read* 'into vertical plates.'

„ 49 „ 1 *for* 'insymmetrical,' *read* 'unsymmetrical.'

„ 49 „ 23 *for* 'circle,' *read* 'arch.'

„ 72 „ 6 *for* 'as,' *read* 'so.'

„ 74 „ 4 from bottom, in note, for end, *read* 'ens.'

„ 75 „ 1 of note, dele the brackets.

„ 79 „ 23 after 'percipient powers,' add the words, 'the Karmika tenets amount to idealism.'

„ 80 „ 4 from bottom, *for* 'Bauddhy,' *read* 'Bauddha.'

„ 85 „ 15 *for* 'existence,' *read* 'assistance.'

„ 86 „ 26 *for* 'by,' *read* 'but.'

„ 87 „ 3 of the note, put the stop *before* the word Sutra.

„ 88 „ 1 and 3 of the note, *for* 'Dharmadya,' *read* 'Dharmodya.'

„ 161 In Col. Burney's notice of Tagoung, *for* 'being,' *read* 'building.'

„ 167 „ 10 *for* 'tiers,' *read* 'tears.'

„ 170 „ 32 *for* 'obstructed,' *read* 'abstracted.'

„ 172 „ 37 and elsewhere, *for* 'venous,' *read* 'vinous.'

„ 175 „ 35 *for* 'mass,' *read* 'marc.'

„ 176 foot note, ditto ditto.

„ 176 „ 19 *for* 'extraction,' *read* 'extractive.'

„ 179 „ 1 *for* 'paséwa, converted,' *read* 'paséwa-converted.'

„ 196 „ 12 *for* 'same,' *read* 'Lama.'

„ — „ 13 *for* 'Bis Bisa,' *read* 'Bisa.'

„ 199 „ 14 omit *cut*.

„ 200 „ 29 *for* 'lines,' *read* 'Hills.'

„ — „ 36 *for* 'Busa,' *read* 'Bisa,' (in all.)

„ 202 „ 18 *for* 'country,' *read* 'province.'

„ 204 „ 33 *for* 'the spirit,' *read* 'that spirit.'

„ — „ 34 *for* 'Bennet,' *read* 'Burnett.'

„ 204 „ 11 *for* 'stones,' *read* 'stone.'

„ — „ — *for* 'Off,' *read* 'out.'

„ 264 „ 1 *for* རྩྭ *read* རྩྭ

„ „ 3 འཇམ་མཁའ་ལྷ་མོ་ འཇམ་མཁའ་ལྷ་མོ་

„ 265 „ 2 འཇམ་མཁའ་ འཇམ་མཁའ་

„ 4 མཁའ་ མཁའ་

„ 7 མཁའ་ མཁའ་

„ 11 མཁའ་ མཁའ་

„ 12 མཁའ་ མཁའ་

„ 13 leave out the word མཁའ་

At the bottom *for* མཁའ་ མཁའ་ *read* མཁའ་ མཁའ་





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Owing to the continual postponement of papers this year, and to the lithographer having numbered his plates without reference to the engravings, many numbers have been given twice over, and the whole occur very irregularly. They will be found, however, correctly placed in the monthly numbers, with exception of *Cultrunguis flavipes*, which must be shifted to page 364—and of the plate circulated with the February Journal which belongs to the preceding volume, Pl. LIV., along with the corrected catalogue of plates of that volume.

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# JOURNAL

OF

## THE ASIATIC SOCIETY.

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No. 49.—January, 1836.

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I.—*Second Memoir on the Ancient Coins found at Beghrám, in the Kohistán of Kábul.* By CHARLES MASSON.

I had the pleasure last year to submit a Memoir on the coins discovered at *Beghrám*, and now beg to offer a second, containing the results of my collection of the present year from the same place: the observations which these coins suggest I shall preface by a few remarks, tending to illustrate the locality of the spot where they are found, as well as some other points connected with it.

I shall also submit, in this Memoir, the results of discoveries in other places, made during the year, so far as they refer to numismatology; in the hope to contribute to farther elucidation of the history of the countries from which I write.

The *dasht* or plain of *Beghrám* bears N. 15 E. from the modern city of *Kábul*, distant by computation eighteen ordinary kos; and as the line of road has few sinuosities or deflections, the direct distance may probably be about twenty-five British miles. It is situated at the south-east point of the level country of the *Kohistán*, in an angle formed by the approach of a lofty and extensive mountain range, radiating from the superior line of the *Caucasus* on the one side, and by the inferior range of *Síáh Koh* on the other. The former range separates the *Kohistán* from the populous valley of *Nijrow*, and the latter, commencing about 15 miles east of *Kábul*, gradually sinks into the plain of *Beghrám*. East of the *Síáh Koh* is a hilly, not mountainous, tract, called *Koh Safi*, which intervenes between it and the extensive valleys of *Taghow*. Through the open space extending from west to east, between these two hill ranges, flows the river formed by the junction of the streams of

*Ghorband* and *Panjshír*, and which forms the northern boundary of the site of *Beghrám*. Through this space also leads the high road from the *Kohistán* to *Nijrow*, *Taghow*, *Laghmán*, and *Jelálabád*. The *dasht* of *Beghrám* is comprised in an extensive district of the *Kohistán* called *Khwojeh Keddri*; to the north, the plain has an abrupt descent into the cultivated lands and pastures of the *Baltú Khele* and *Karindat Khán Khele* families, which at the north-western point interpose between it and the river for the extent of perhaps a mile, or until the river leaves the base of a singular eminence called *Abdullah Búrj*, which from the vast mounds on its summit was undoubtedly an appurtenance of the ancient city. East of this eminence another small space of cultivated lands, with two or three castles, called *Karáhichí*, interposes between a curvature in the direction of the abrupt boundary of the *dasht*, and the direct course of the river; east of *Karáhichí* rises a low detached hill, called *Koh Butcher*, which has an extent eastward of about a mile and half, intruding for that distance between the level *dasht* and the river; at the eastern extremity of *Koh Butcher* is one of those remarkable structures we call *topes*. Parallel to *Koh Butcher*, on the opposite side of the river, are the castles and cultivated lands called *Muhammad Rákhí*, and beyond them a sterile sandy tract gradually ascending to a celebrated hill and *Zeúrat*, named *Khwojeh Raig Rawán*, and thence to the superior hill range before mentioned; east of *Koh Butcher*, the level plain extends for about a mile, until the same character of abrupt termination sinks it into the low lands of *Júlghar*, where we find numerous castles, much cultivated land, and as the name *Júlghar* implies, a large extent of *chaman* or pasture. The lands of *Júlghar*, to the east, from the boundary of the *dasht* of *Beghrám*, to the south, its boundary may be considered the stream called the river of *Koh Damán*, which after flowing along the eastern portion of *Koh Damán*, and receiving what may be spared after the irrigation of the lands from the streams of *Shakr Darrah*, *Beyduk*, *Tugah*, *Istalif*, &c. falls into the joint river of *Gharband* and *Panjshír* at a point below *Júlghar*. Beyond the river of *Koh Damán*, a barren sandy soil ascends to the skirts to the *Síáh Koh* and *Koh Safí*. Among the topographical features of the *dasht* of *Beghrám* may be noted three small black hills or eminences, detached from each other, which in a line, and contiguous to each other, arise from the surface of the soil a little north of the river of *Koh Damán*. To the west of *Beghrám* are the level lands of *Mahíghír*; at the north west angle of the plain is the small village of *Killah Boland*, where reside about seven Hindú traders, some of them men of large capitals; and at the south-west angle are three castles called *Killah Yezbáshí*, distant from *Killah Boland* about four miles. From *Killah Boland* to *Júlghar* a

distance occurs of four and half to five miles ; from *Júlghar* to the skirts of the *Síáh Koh*, about six miles ; from the termination of *Koh Síáh* to *Killah Yezbáshí* may be also about six miles, and from *Killah Yezbáshí* to *Killah Boland* about four miles, as just noted. The whole of the intermediate space between these points, and even beyond them to the south-east and south-west, is covered with fragments of pottery, lumps of dross iron, &c. and here are found the coins, seals, rings, &c. which so much excite our curiosity. Notwithstanding the vast numbers of such reliques discovered on this extent of plain, we have hardly any other evidence that a city once stood on it, so complete and universal has been the destruction of its buildings. But in many places, we may discover, on digging about the depth of a yard, lines of cement, which seem to denote the outlines of structures, and their apartments ; on the edge of the plain, where it abruptly sinks into the low lands of *Baltú Khele*, from *Killah Boland* to *Káráhichí*, is a line of artificial mounds ; on the summit of the eminence called *Abdullah Búrj* are also some extraordinary mounds, as before noted, and contiguous to the south is a large square described by alike surprising mounds ; on one side of this square, the last year, a portion sank or subsided, and disclosed that these mounds were formed or constructed of huge unburnt bricks, two spans square and one span in thickness. This circumstance also enabled me to ascertain that the original breadth of these stupendous walls, for such we must conclude them to have been, could not have been less than sixty feet ; probably much more. Among the mounds near *Killah Boland* is a large tumulus, probably a sepulchre, which appears to have been coated with thin squares of white marble ; and near it, in a hollow formed in the soil, is a large square stone, which the Muhammedans call *Sang-Rustam*, or the stone of *RUSTAM*, and which the Hindús, without knowing why, reverence so far as to pay occasional visits to it, light lamps, and daub it with *Sindúr* or red lead. In the Muhammedan burial ground of *Killah Boland* is a fragment of sculptured green stone, made to serve as the head-stone to a grave ; about four feet thereof is above ground, and we were told as much more was concealed below ; this is a relique of the ancient city, and we meet with another larger but plain green stone, applied to a similar purpose, in a burial ground called *Shahídan*, or the place of martyrs, under *Koh Butcher*. In a *Zeárat* at *Charikár* is also a fragment of sculptured green stone ; and it is remarkable that all the fragments of stone which we discover, and which we may suppose to have reference to the ancient city, are of the same species of colored stone. The traditions of the country assert the city of *Beghrám* to have been overwhelmed by some natural catastrophe, and while we vouch not for the fact, the entire demolition of the

place, with the fact of the outlines of buildings discoverable beneath the surface, seem not to discountenance the tradition. It is not however improbable that this city, like many others, may owe its destruction to the implacable rage of the barbarous and ruthless GENGHIZ, who like ATTILA described himself as the "*Ghazb Khudá*," or "Scourge of God." That it existed for some time after the Muhammedan invasion of these countries is evidenced by the numerous coins of the Caliphs found on its site. That it ceased to exist at the period of TIMU'R's expedition into India, we have negative proof furnished by his historian SHERIFUDDIN, who informs us, that TIMU'R, in his progress from *Anderab* to *Kábul*, encamped on the plain of *Baran* (the modern *Bayan*, certainly) and that while there, he directed a canal to be cut, which was called *Mahighír*, by which means, the country, before desolate and unproductive, became fertile and full of gardens. The lands thus restored to cultivation, the conqueror apportioned among sundry of his followers. The canal of *Mahighír* exists at this day, with the same name it received in the time of TIMU'R. A considerable village, about one mile west of *Beghrám*, has a similar appellation. This canal, derived from the river of *Ghorband*, at the point where it issues from the hills into the level country, irrigates the lands of *Báyán* and *Mahíghír*, and has a course of about ten miles. Had the city of *Beghrám* then existed, these lands immediately to the west of it, would not have been waste and neglected, neither would TIMU'R have found it necessary to cut his canal, as the city when existing must have been supplied with water from the same source, that is, from the river of *Ghorband*; and from the same point, that is, at its exit from the hills into the level country; and the canals supplying the city must have been directed through these very lands of *Báyán* and *Mahíghír*, which TIMU'R found waste and desolate. The courses of the ancient canals of *Beghrám* are now very evident, from the parallel lines of embankments still to be traced. The site of *Beghrám* has, to the north, the river formed by the junction of the *Ghorband* and *Panjshír* streams, and to the south, the river of *Koh Damán*; but neither of these rivers are applicable to the irrigation of the circumjacent soil, the former flowing in low lands, perhaps one hundred and fifty feet below the level of the plain, and the latter scantily furnished with water flowing in a sunken bed. It may be farther noted, with reference to TIMU'R's colonization of *Mahíghír*, that the inhabitants of the district of *Khwojeh Keddri*, while forgetful as to whom their forefathers owed their settlement in this country, acknowledge their *Turki* descent, and alone of all the inhabitants of the *Kohistán* speak the *Turki* language. We might expect to detect a notice of *Beghrám* in the Arabian records of the early caliphs, in the histories of the Ghaznavi emperors, and in those of GENGHIZ KHÁN.



That *Beghrám* was once a capital city is evidenced by its *tope*, a sepulchral monument of departed royalty; while a second, situated in *Tope Darah*, about nine miles west, may probably be referred to it, as may perhaps a third found at *Alisahí*, at the gorge of the valley of *Nijrow*, distant about 12 miles east. The appellation *Beghrám* must also be considered indicative of the pre-eminence of the city it characterizes; undoubtedly signifying the chief city or metropolis. About three miles east of *Kábul*, we have a village and extensive pasture retaining this name, which indicates the site of the capital in which KADPHIS and his lineage ruled, and whose topes we behold on the skirts of the neighbouring hills. Near *Jelálábád*, a spot called *Beghrám*, about a mile and half west of the present town, denotes the site of the ancient *Nysa*; or, if the position of that city admit of controversy, of *Nagara*; its successor in rank and consequence. Near *Pesháwar* we have a spot called *Beghrám*, pointing out the site of the original city; and that this epithet of eminence and distinction was continued, up to a recent date, to the city of *Pesháwer*, we learn from BA'BER and ABUL FAZL.

We have indications in the *Kohistán* of *Kábul* of two other ancient cities, which were undoubtedly considerable ones, but which we cannot suppose to have rivalled *Beghrám* in extent or importance. The principal of these is found in *Perwan*, about eight miles N. 19 W. of *Beghrám*, and consequently that distance nearer to the grand range of Caucasus, under whose inferior hills it is in fact situated. The second is found at *Korahtass*, a little east of the famed hill, and *Zeárat Khwojeh*, *Raig Ruwan*, distant from *Beghrám* about six miles N. 48 E. There are also many other spots in various parts of the *Kohistán* which exhibit sufficient evidences of their ancient population and importance; but these must be considered to have been towns, not cities. In the valley of *Panjshir* we have more considerable indications, and we are enabled to identify three very extensive sites of ancient cities; but which, from the character of the country, and the limited extent of its resources, we can hardly suppose to have flourished at the same epoch. In the *Koh Damán* of *Kábul*, or the country intervening between that city and the *Kohistán*, we discover two very important sites, which unquestionably refer to once capital cities: both occur in a direct line from *Beghrám* to *Kábul*, under the low hill ranges which bound *Koh Damán* to the east, and contiguously also east to the river of *Koh Damán*; the first commences about eight miles from *Beghrám*, and is known by the name of *Tartrung-Zar*; the second is about the same distance farther on, and has no particular name, but is east of the seignorial castles of *Luchú Khan*, and the village of *Korinder*: at this site we find a *tope*, an indubitable evidence of royalty, and connected with it is a stupendous

artificial mound on the west bank of the river, constructed with elaborate care: the base appears originally to have been surrounded with a magnificent trench, supplied by the stream with water. Here no doubt was some important structure, a palace or citadel. At this day the summit is crowned with dilapidated mud walls of modern construction, and the spot is known by the name of *Killah Rájput*. In the district of *Ghorband*, west of the great hill range, which radiating from the *Hindú Kosh*, or *Caucasus*, forms the western boundary of *Koh Damán*, we have very many important vestiges of antiquity, both in the principal valley and in its dependencies, particularly in one of them named *Fendúkistán*: we have reasons to believe that coins are found there in considerable numbers, and that there are some interesting mounds; but as we have not seen this spot, we refrain from speculating upon its character.

We have thus enumerated the principal ancient sites of cities in *Koh Damán* and *Kohistán*, both as shewing the former importance and illustrating the capabilities of these fine countries, and as exhibiting the fluctuations, in ancient times, of the seat of royalty in them. *Beghrám*, *Perwan*, *Tartrung-Zar*, and *Killah Rájput* have no doubt in succession been the abodes of sovereigns, as have most probably *Panjshír* and *Korahtass*. Our minuteness may moreover be excused, because in this part of the country we expect to detect the site of *Alexandria ad Caucasum*, or *ad calcem Caucasi*. It may be remarked, with reference to the sites of *Beghrám* and *Perwán*, that the former is called by the Hindús of the country '*Balráam*,' and is asserted by them to have been the residence of Rájá BAL; the latter they call *Milwán*, and assert to have been the capital of Rájá MILWAN. MILWAN may be a Hindú appellation, but it has been also assumed by Muhammedans.

We have it not in our power to consult the ancient authorities, who have noticed *Alexandria ad Caucasum*, or probably its site might have been definitely fixed; but when we know that it was also called *Naulábi* or *Nilábi*, from being situated on or near the river *Naulábi* or *Niláb*, we have no difficulty in seeking for its position, being acquainted with the geographical features of this part of Asia. The name *Nilábi* could only have been conferred on the river of *Ghorband*, or on that of *Panjshír*, or to both, after their confluence; in the latter event, we are brought to the site of *Beghrám* without the chance of error. The rivers of *Ghorband* and *Panjshír* unite at a spot called *Tokchí*, bearing north a little west of *Beghrám*, distant about a mile and half or two miles, and near the place called *Inchór*, which is inserted in the map accompanying the Honorable Mr. ELPHINSTONE'S work. *Inchór* is a solitary castle, picturesquely seated amid a large extent of fine *chaman* or pasture land. From its source the river of *Ghorband*, which is also that of *Bamán*,

has a greater extent of course than that of *Panjshúr*; but the latter is the more considerable stream. At the point where the river of *Panjshúr* issues from the hills into the level country of the *Kohistán*, is a spot now called *Niláb*; also at the very site of *Beghrám* after its union with the *Ghorband* river, the united stream has the same name, in both instances derived from the great depth of the water, and its consequent limpid and blue appearance. In the valley of *Ghorband* is a spot called *Niláb*, which now by some contradiction is conferred upon the land adjacent to the river, and not upon the river itself. I incline to consider the river of *Ghorband* to be the *Nilábi* of our ancient authors, and if it be found that the *Naulábi* of PTOLEMY, STRABO, or PLINY, the writers who have probably mentioned it, be conducted by *Drapsaca* or *Drashtoca*, which may be concluded to be the modern *Bamíán*, we can have no doubt of the fact, and the merit of being considered the site of *Alexandria ad Caucasum*, or *ad calcem Caucasi*, can only be contested by two sites, that of *Niláb*, in the valley of *Ghorband*, and that of *Beghrám*. Near *Niláb*, in *Ghorband*, we find the remains of a most stupendous fortress; but however valuable as a military post, it does not seem calculated to have been the site of a large city. *Beghrám*, on the contrary, possesses every advantage of situation, and would in these days, if revived, bid fairer to realize its pristine prosperity, than any other site in these countries. With the term *Alexandria ad calcem Caucasi*, the situation of *Niláb* would precisely agree, and we learn also that the city so called was near the cave of PROMETHEUS. This appears to have been justly located by WILFORD, near the pass of *Shibr*; and we find at *Ferinjal*, a dependency of *Ghorband*, between it and *Bamíán*, or near *Shibr*, a most extraordinary cave, which we would fain believe to be that of PROMETHEUS. With the term *Alexandria ad Caucasum*, the site of *Beghrám* would sufficiently coincide; while its distance from the cave of *Ferinjal*, or that of PROMETHEUS, is not so great as to violate propriety in its being termed contiguous, while its propinquity to the base of Hindu Kosh, or Caucasus, would seem to justify its being entitled *Alexandria ad calcem Caucasi*. That ALEXANDER established not merely a military post, but founded a large city, we ascertain, when we learn from CURTIUS, that he peopled it with no less than seven thousand menials of his army, besides a number, of course considerable, but not mentioned, of his military followers, and are distinctly informed, that the city in question became a large and flourishing one. No doubt, if this part of Asia were to come under European control, the re-edification of *Beghrám* would be deemed a necessary measure, for a considerable city at this spot would not only provide for the due submission of the half-obedient

tribes of the *Kohistán*, but would secure the allegiance of those absolutely in rebellion or independence, as of *Panjshir*, *Nijrow*, *Taghow*, &c.

It is impossible to cast a retrospective view over the regions of *Afghánistán* and *Turkistán*, to behold the cities still in existence, and the sites of such as have yielded to the vicissitudes of fortune, which owe and owed their foundation to ALEXANDER THE GREAT, without paying the tribute of homage and admiration to his genius and foresight. Above twenty centuries have elapsed, since the hero of Macedon marched in his triumphant career from the shores of the Bosphorus to the banks of the Hyphasis, subjecting the intermediate nations, but rendering his conquests legitimate, by promoting the civilization and prosperity of the vanquished. A premature death permitted not posterity to wonder at the prodigy of an universal monarchy, which he alone of all mankind seemed talented to have erected and maintained. No conqueror had ever views so magnificent and enlightened, and none ever left behind him so many evidences of his fame. Of the numerous cities which he founded, many are at this day the capitals of the countries where they are found; and many of those no longer existing would assuredly be revived, were these parts of Asia under a government desirous to effect their amelioration. The selection of *Mittun* by the British Government of India for their mart on the Indus, while the most eligible spot that could have been chosen, was also a tribute of respect to the memory of the illustrious ALEXANDER; for there can be no doubt that *Mittun* indicates the site of the *Alexandria* that he founded at the junction of the united streams of the *Panjáb* with the Indus, and which he predicted, from the advantages of position, would become a large and flourishing city. It may be that *Mittun* under British auspices may realize the prophecy applied by the hero to his *Alexandria*.

To return from this digression to the question of the site of *Alexandria ad Caucasum* or *ad calcem Caucasi*, we can only refer it to two spots, *Niláb* in *Ghorband*, and *Beghrám*: I incline to prefer the latter, from the superiority of its local advantages, and from the certainty of its having been a large and flourishing city, as *Alexandria* is represented to have become. In favor of *Niláb* may perhaps be adduced the itinerary of DIOGNETES and BÆTON, the surveying officers of ALEXANDER, as preserved by PLINY. We there find the measured distance from the capital of *Arachosia* to *Ortospanum* stated to be 250 miles, and from *Ortospanum* to *Alexandria*, 50 miles. The capital of *Arachosia* was unquestionably in the vicinity of the modern *Kándahár*, and *Ortospanum*, although by some considered *Ghazni*, may safely be referred to *Kábul*, when we find in PROBLEMY that it was also called *Cabura*, the first approximation to the present name



*Kábul*, which we detect in our ancient geographers. The distance between the modern cities of *Kábul* and *Kándahár*, agreeably to admeasurements made under the *Chaghátai* Emperors of India, is ninety-two *Jeríbi koss*, or nearly 210 British miles; the miles of *PLINY* are no doubt Roman ones, which were, I believe, a little less than our British statute ones: this slight difference will not however compensate for the excess in the distance fixed by *ALEXANDER*'s officers; but there are reasons to suspect that the ancient capital of Arachosia was situated some eighteen or twenty miles west of the modern *Kandahár*, at the base of a hill called *Panchvahi*, where traditions affirm a large city once flourished, and of which there is abundant proof in the huge mounds to be observed there. The ancient city of *Kábul*, which I infer to have been *Ortospanum*, was seated also some three or four miles east of the modern one; the distances here gained, with the difference between British and Roman miles on two hundred and fifty of the latter, (if they be, as above assumed, less,) will reconcile the measurements of the officers of *ALEXANDER* with those of the *Chaghátai* Emperors, and we can have little doubt but that *Ortospanum* is represented by the present *Kábul*. From *Kábul* to *Beghrám*, the distance is not certainly more than twenty-seven British miles; but from *Kábul* to *Niláb* of *Ghorband*, the distance is nearly, if not fully, fifty miles, coinciding with the account of *DIOGNETES* and *BÆTON*. It may however be observed, that different copies of *PLINY* have in this instance various numbers, so that we feel perplexed to select the genuine ones; fifty I believe to be the least mentioned, and I have calculated with it, supposing it the more probable one. The same itinerary gives the distance between *Alexandria ad Caucasum* and *Peucalaotis*, stated to be 227 Roman miles: this latter place has generally been located near the modern *Pesháwar*; from *Kábul* to *Pesháwar* are estimated 112 ordinary *koss*, which, calculated at one mile and half each, yield nearly 170 miles, *Beghrám* will be nearly equidistant from *Pesháwar* with *Kábul*, therefore the distance noted in the itinerary will coincide rather with the locality of *Niláb*, which may be about 30 British miles from *Beghrám*, and consequently 200 or more British miles from *Pesháwar*, equivalent perhaps to 227 Roman miles. But I do not feel confident that *Peucalaotis* has been justly referred to the site of *Pesháwar*. It appears to have been the name of a province, the capital of which was *Peucelu*; in these terms we detect a considerable affinity to the modern appellation *Puekoli*, applied to a district with capital of the same name east of the *Indus*, and above *Attock*, which in ancient times included a considerable territory west of the *Indus*. It is not certain that *ALEXANDER* visited the immediate vicinity of *Pesháwar*, although *HEPHÆSTION* will have done

so; and it is probable that he crossed the *Indus* above *Attock*, or at a point in the modern district of *Puekoli*, perhaps the ancient *Peucolaotis*. A similarity of denomination may not always be depended upon, but when combined with other accordances, it becomes, as D'ANVILLE expresses it, "un moyen de convenance." I shall close my speculations on the site of *Beghrám*, by remarking, that ALEXANDER in his march from *Bactra* to *Alexandria ad Caucasum* will have arrived at it by the route of *Bamíán* and *Shibr*, because ARRIAN informs us, that he passed *Drapsaca* on the road, which can hardly be mistaken for the former of those places. ALEXANDER crossed the *Hindú Kosh* or *Caucasus* in the month of May; when, supposing the seasons and climate of these countries to have been the same as at present, any other route over that mountain range was impracticable. The route from *Bamíán* to *Ghorband* is passable to *káfilas* at all seasons of the year, and is no doubt the high road; but it has been closed during the last twenty-five years, by the insurrection of the *Shaikh Alí Hazáreh*s, who inhabit the small extent of country between *Ghorband* and *Shibr*. The route of *Bamíán* will have conducted ALEXANDER either to *Niláb* or *Beghrám*; and these observations would have been unnecessary, had it not been supposed by some that his starting place was *Anderáb*: this assumption does not however seem warranted, and if grounded on the route that TIMU'R followed, it should have been recollected that the Tartar conqueror crossed the Indian *Caucasus* in the month of July.

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It had been my intention this year to have secured every coin of every description that should be picked up from the *dusht* of *Beghrám*, and this purpose would probably have been effected, had I not been compelled to be absent at *Jelúlábád*. A young man was however despatched thither, with recommendatory letters to my friends in the *Kohistán*, and to him was confided the collection of all he might be able to procure. On my eventually reaching *Kábul*, the young man joined with 1320 coins, from the appearance of which it was evident he had selected, and not, as ordered, taken all that were offered. It also appeared, that in consequence of the distracted political state of the *Kohistán* in the spring, the *Afghán* pastoral families had not as usual visited the plains of *Beghrám* at an early season. In the autumn, moreover, from apprehensions of a rising in this part of the country, the *Afgháns* sent their flocks to the *Safí* hills, the persons tending which are the principal finders of these coins. Under these unfavorable circumstances, I twice repaired to *Beghrám*, and at various intervals despatched my young men, and the total result of our collection this year was five silver and 1900 copper coins. These are of course generally

of the same description and types as those illustrated in my Memoir of last year; but a few were procured of novel types, and a few altogether new, among which one or two may be deemed valuable. It is my object in this Memoir to detail these fresh discoveries, and to offer such remarks upon them, and the topics they involve, as may arise upon their consideration. My stay at *Jelálábád* was, during the season of the year, unfavorable for the collection of coins; yet, independently of those extracted from topes, were procured 248 copper coins, among which two or three are novel ones, to be noted in their place.

Subsequent to my arrival in *Kábul*, I purchased in the bazár there, six golden, 176 silver, and 142 copper coins: some of these are important ones. I had also the fortune to secure a large parcel of silver Bactrians, a deposit discovered in the *Hazárehjút*: among these are coins of a type likely to excite some interest.

The coins extracted from the various topes opened this year, may also be deemed interesting, from the positive connection they have with the monuments enclosing them; and valuable, from their superior preservation, having in many instances been inserted new; and presenting specimens as perfect and intelligible as we may hope to procure.

I shall observe in this Memoir nearly the order adopted in my preceding one, with reference to classification and the succession of series, making however such modifications and distinctions as further discoveries seem to warrant.

#### GENERAL OBSERVATIONS.

*Class, Grecian Series, No. 1.—Coins of the recorded Kings of Bactria.*

As during the last year, we are without any evidence of THEODOTUS I. and THEODOTUS II., the two first Bactrian kings; and that their sway was confined to Bactriana proper, or the regions north of the Indian Caucasus, is confirmed by the non-discovery of their coins at *Beghrám*. This fact can scarcely be doubted, when we have historical evidence, that a distinct and powerful kingdom existed, under SOPHAGASENUS, in the Paropamisian range, at the time of the expedition of ANTIOCHUS MAGNUS.

This year has yielded five copper coins of EUTHYDEMUS, the third Bactrian king; one was procured at *Jelálábád*; the four others from *Beghrám*: their discovery seems to prove the extension of this monarch's rule south of the Caucasus—a fact countenanced by probability, and the slight historical evidences we have of him. The solitary coin found at *Jelálábád* does not afford proof positive that EUTHYDEMUS governed there also, both because there is no certainty where coins purchased in bazárs were produced; and it is not impossible but that it may have found its way there from *Beghrám*, as the *Afghán* shepherds, resident on its plain during the summer, migrate to *Lughmán* and the vicinity of *Jelálábád*,

during the winter ; and the few coins they may bring with them, they disperse among the dealers in the small towns, as their trifling wants of oil, tobacco, &c. may induce them. EUTHYDEMUS being denominated of Magnesia, it may be questioned, in what manner he ascended the Bactrian throne, whether by the right of lawful succession, or of successful usurpation. At all events, he appears to have been a sovereign of great talents, worthy of his exalted rank.

Of APOLLODOTUS, besides a large number of copper coins, we have this year procured five silver quadrangular coins, the type varying from those already known.

Of the celebrated MENANDER, this season has afforded us some copper coins of novel types, and a large number of silver drachmas and hemidrachmas, presenting alike some varieties in the types : we found not one of this prince's coins at *Jelálábád*, where we indeed met with two of APOLLODOTUS, but decline to draw inferences from solitary specimens.

When we consider the coincidences observable on the coins of MENANDER and APOLLODOTUS, some of which have even the same figures on the reverses with the resemblance of their features ; and when we find them conjointly commemorated by ARRIAN and TROGUS, the only two ancient authors who have recorded the latter's name, we feel every inclination to conjecture that the ties of consanguinity must have connected them. As APOLLODOTUS is previously named by both these authorities, he may be supposed to have been the father, or perhaps elder brother, of MENANDER ; and that he preceded the latter in sovereignty would seem nearly certain, being borne out by every circumstance attending the coins we discover. That the reigns of both these princes was of considerable duration is evidenced by the numerous coins we find, and by the variety of types they exhibit, proving them to have been struck at different periods. The busts of APOLLODOTUS on the two or three coins hitherto found, which exhibit them, have an extremely youthful appearance ; and the portraits of MENANDER display the transition from youth to manhood. That APOLLODOTUS reigned in *Bactriana* proper, we doubt with BAYER, although his pretensions have been advocated by Colonel TOD. That he was the son of EUTHYDEMUS, we think certain, and that he was the father or elder brother of MENANDER, we think probable, and assuredly his predecessor ; that he governed in the provinces south of *Bactriana* is certain, and there, according to the suggestions of SCHLEGEL, I incline to locate his original kingdom and that of MENANDER ; that this kingdom may have included some of the provinces of *Bactriana Lator*, or the regions immediately north of the Caucasus, is very probable, and would justify its monarchs' being styled kings of *Bactria* by their historians. How far this kingdom



extended eastward, we may not be able now to determine; but the non-discovery of the coins of APOLLODOTUS at *Jelálábád* (holding two or three specimens procured from bazárs, but found no one knows where, no exception to the remark) seems to prove that in his time an independent power must have existed there: this receives farther proof when we meet not there with the coins of his successor MENANDER, which abound so numerously at *Beghrám*. As APOLLODOTUS certainly invaded India, we may suppose him, without prejudice to the kingdom of Nysa, to have marched by the route of *Khouram*, *Bannú*, and *Multán* to the *Hyphasis*, on exactly the same route that was followed by TIMUR; and in corroboration thereof, we find him brought to the *Hyphasis*, where he re-edified the city of *Sangála* under the name of *Euthydemia*. There can be little doubt but that *Sangála* owed its revival to APOLLODOTUS. That it sprang into new consideration under the auspices of a son of EUTHYDEMUS, can scarcely be questioned, and every circumstance seems to point out that son to have been APOLLODOTUS. The coin discovered by Dr. SWINEY, which bears the epithet *Philopater*, not a little confirms this fact. MENANDER, whether the son or brother of APOLLODOTUS, seems fairly entitled to be considered his successor. This prince followed up the Indian conquests, while he preserved his dominion in the provinces south of Bactriana; but these latter, on his decease, probably will have been assumed by EUCRATIDES the I., or the Great, king of Bactriana proper. MENANDER, we know, was interrupted in his warlike operation by death; but when, and where, is not recorded by history, which has been alike faithless to the actions of one of the most illustrious sovereigns that ever held a sceptre.

The coins of EUCRATIDES I., so numerously found at *Beghrám*, are not to be discovered at *Jelálábád* any more than those of APOLLODOTUS and MENANDER, considering always a single specimen no evidence that coins of that species were once current there, but rather that they were not: this circumstance farther substantiates the existence of an independent monarchy at Nysa, and that it was sufficiently powerful to maintain its integrity inviolate; for EUCRATIDES was no doubt a warlike and ambitious prince.

Before adverting farther to EUCRATIDES, we may be excused in offering two or three observations as to DEMETRIUS, a recorded son of EUTHYDEMUS, and employed by him in his negociations with ANTIOCHUS. If he stand simply recorded as a son, it neither proves that he was the elder son, although probable, or, that he was the only son. As it was probably by his means that EUTHYDEMUS subverted the kingdom of GAJ, in the Paropamisian range—an event which could not have occurred until the close of the reign of EUTHYDEMUS; as SOPHAGASENUS, the father



of GAJ, was his cotemporary at the period of the expedition of ANTI-  
 OCHUS, we may suppose that DEMETRIUS retained the sovereignty of  
 the countries he conquered, and extended his conquests in *Arachosia*,  
 now thrown open to his arms. Accordingly, in a route of ISIDORUS of  
 Charox the name of a city, *Demetrias* of *Arachosia*, occurs, which  
 would seem referred with justice by SCHLEGEL to the son of EUTHY-  
 DEMUS, and which points out the direction of his empire. Without  
 power of reference to the route of ISIDORUS, in which the name *Deme-*  
*trias* occurs, we may observe, should it be found in any of those  
 from the western provinces, as *Ariana*, &c. to the eastern ones on the  
 Indus, we should incline to place it in the valley of the *Turnek*, between  
*Kandahár* and *Mokur*, in the country now inhabited by the *Thokí*  
*Gulzyes*, where we have evidences that a powerful capital once existed,  
 which may have been that of DEMETRIUS. The attack of DEMETRIUS,  
 or his son, of the same name, upon EUCRATIDES may have arisen from  
 the irksomeness naturally to be felt at the vicinity of a powerful and  
 ambitious prince, who, by the extension of his empire, had sufficiently  
 evinced his desire of aggrandizement. History, which records DEMETRIUS  
 as the aggressor in this war, also records that EUCRATIDES had possessed  
 himself of *Ariana*, and we find that he was also master of the regions  
 south of the Indian Caucasus, thus pressing upon the confines of *Arachosia*  
 at the two extreme points of east and west. Aggression on the point of  
 DEMETRIUS may therefore have been a measure of necessity, or even of  
 prudence, it being certainly more politic to aggress than to be reduced  
 to repel aggression. It has not been our fortune to meet with a coin of  
 DEMETRIUS, or to be acquainted with the type of that procured by Baron  
 MYENDORFF at Bokhárá; but unless the reverse be decidedly Bactrian, a  
 bust adorned with the skin of an elephant would not be sufficient evidence,  
 in our estimation, to allow its appropriation to the son of EUTHYDEMUS.  
 I have a letter from M. MARTIN HONIGBERGER, from *Bokhárá*, by which  
 I learn that he has also procured there a coin of DEMETRIUS, but he  
 has not described its character. It may be noted that these two coins of  
 DEMETRIUS, the only ones, we believe, hitherto discovered\*, have been  
 elicited at *Bokhárá*. Among the coins obtained by M. HONIGBERGER  
 at *Bokhárá*, and which he thought worthy of enumeration, probably  
 as being both Greek and silver ones, are transcribed in his memorandum,

- 1 Vasileos Antiochu.
- 1 Vasileos Dimitriu.
- 1 Vasileos Megalu Hiokraksu.
- 3 Vasileos Euthidimu.
- 5 Eucratides.

\* There is a beautiful little Demetrius in the Ventura collection; see vol IV.—ED.

As DEMETRIUS did not succeed his father in Bactriana proper, and reasons may be alledged for suspecting that APOLLODOTUS also did not, the question naturally arises, to whom are we to assign the empire of *Bactriana* in the interval between the demise of EUTHYDEMUS and the accession of EUCRATIDES—a space of fourteen years according to the table of SCHLEGEL. I have mentioned the discovery of a parcel of *Bactrian* drachmas and hemi-drachmas in the *Hazárehjât*, which we purchased from a *Hindú* at *Charrukar*, who some three years since received them from a *Hazaureh*. I have not yet been able to ascertain the spot, or under what circumstances these coins were found. The parcel, 120 in number, comprised seven quadrangular silver coins of APOLLODOTUS, 108 silver coins of MENANDER, and five silver coins of ANTIMACHUS. The day preceding that on which this parcel of coins came into my possession, I received from the dushts of *Beghrám*, a silver coin of the same last-named prince, ANTIMACHUS. The beauty of the coins of ANTIMACHUS, the excellence of their execution and designs, with the purity of the Greek characters of the legend, allow us not to place this prince subsequent to EUCRATIDES, whose coins in these particulars they surpass. Among 5000 or more copper coins, procured from the dasht of *Beghrám*, we have not discovered one of ANTIMACHUS, and the detection of a single silver coin does not seem to afford evidence that he ruled there, when the absence of his copper coins seem to prove that he did not. Where then must he be placed? We feel the inclination to conjecture him to have been the son and successor of EUTHYDEMUS in Bactriana proper. The reverses on the coins of APOLLODOTUS and MENANDER are not strictly Bactrian, or in relative connection with those we discover on those of the undoubted kings of Bactriana, EUTHYDEMUS and EUCRATIDES; the horseman in charge on the reverses of those of ANTIMACHUS is so, and forms the link between the horse at speed on the coins of EUTHYDEMUS, and the two horsemen in charge on those of EUCRATIDES. The monograms on the coins of ANTIMACHUS coincide with some on the coins of MENANDER, and if we can suppose them to be numerical ones (which however I affirm not to be certain) suggest the opinion that they were contemporaneous princes, it being possible both were deduced from a common era. We feel perplexed when we are only allowed by the table of SCHLEGEL, an interval of fourteen years, and when we have three princes who may claim to have reigned between EUTHYDEMUS and EUCRATIDES; it may however be suspected that the accession to sovereignty of the latter, unless historically fixed, is antedated ten years. No one of the very many coins of this prince we meet with, presents a monogram clearly numerical, which yields a higher number than 85; while the highest number

found is 108, as preserved on the silver didrachma in the Earl of PEMBROKE's cabinet, noted by PINKERTON and indicating the close of his reign. Neither do the features of EUCRATIDES, as preserved on his coins, exhibit the striking variation of youth to manhood observed on those of MENANDER, and do not authorize us to allow so long a reign as 35 years. I incline to date his accession at the epoch 84, of the Bactrian æra, and to fix the duration of his reign to 25 years: thus gaining between it and the demise of EUTHYDEMUS an interval of twenty-four years; but even this increased interval does not suffice for the reigns of APOLLODOTUS, MENANDER, and ANTIMACHUS. Those of the two former, particularly of MENANDER, were certainly of some duration, as evidenced by their numerous coins of various types discovered. APOLLODOTUS, from the youthful bust displayed on his coins, may be inferred to have died young; but MENANDER, we think, must be allowed to have attained mature manhood, or the age of forty to forty-five years: while his numerous coins, shewing the traits of extreme youth, seem to attest his accession to sovereignty at an early period of his life, and consequently confirm the length of his reign. Many of the coins of both these princes have alphabetical monograms, which, if accepted as numeral ones, may assist us in our conjectures. On the copper coins of MENANDER we find HA or 81, which can only refer to the Bactrian æra. On the silver coin found by Colonel TOD, we find 1A or 14, which can only refer to his individual reign. HB or 82 is also found on the coins of MENANDER, which brings us nearly to the number indicated by HE or 85, the lowest number to be found on the coins of EUCRATIDES. That this prince succeeded MENANDER in the government of the countries immediately south of the Caucasus appears unquestionable; but it was most likely by forcible assumption: for had he been the lawful successor of MENANDER, he was not of a character to have relinquished his Indian possessions, where it would appear almost certain he did not reign: these observations are necessary, because the adoption of a monogram by MENANDER, which may be supposed to indicate the Bactrian æra, might induce an opinion that he was the predecessor of EUCRATIDES in Bactriana proper; while other circumstances we have noted seem to prove that he was not, independently of the ambiguous nature of the monograms themselves. The age depicted on the busts of APOLLODOTUS, and on those of the early coins of MENANDER, seem so nearly to agree, that while we would fain consider the latter as the successor of the former, we can scarcely suppose him the son, and our alternative is to conjecture him the brother. If MENANDER be admitted to have reigned in Bactria, we fancy APOLLODOTUS must be also; and it may be granted that their joint reigns might conveniently fill the interval between EUTHYDEMUS and EUCRA-

TIDES of twenty-four years, if our calculation thereof be conceded; but when we find the principal scenes of the military operations of these princes were in India, joined with other circumstances, as well as the discovery of the coins of *ANTIMACHUS*, the probability appears to be that they ruled originally, as before advanced, in the regions immediately north and south of the Indian Caucasus. *EUTHYDEMUS*, a monarch of great capacity, would appear to have been fortunate in his sons, (possibly by various mothers, for polygamy was a vice, according to *CURTIVS*, that the Greeks adopted from the barbarians,) by whose means he extended his territories, and greatly increased the dignity of the Bactrian empire. It may be supposed that he apportioned his empire amongst his sons, allowing them to retain the countries they had individually subjected: thus we may account for the kingdom of *DEMETRIUS* in *Arachosia*; for that of *APOLLODOTUS* and *MENANDER* in *Bactriana Latior* and the regions south of the Caucasus; and we may perhaps be allowed to consider *ANTIMACHUS* as the eldest son and successor of his father in *Bactriana proper*. That this distribution of power was agreeable to the parties concerned, we may conjecture, when, in absence of direct information, there are grounds for belief that no war originated between them. The epoch of *ANTIMACHUS* cannot, we suspect, were only the excellence of his coins adduced, be dated posterior to that of *EUCRATIDES*; after whose death, the knowledge of Grecian arts and sciences may naturally be supposed to have declined: indeed the copper coins of *EUCRATIDES* himself, although a powerful monarch, exhibit a striking inferiority of execution, compared with those of *EUTHYDEMUS*, which the coins of *ANTIMACHUS* rival. We may suppose the reign of *EUTHYDEMUS* to have been the most brilliant of the Bactrian monarchy, or that in which the Grecian arts were most cultivated and flourishing.

I am not allowed to place *ANTIMACHUS* prior to *APOLLODOTUS*; for I have shewn how strong are the latter prince's claims to be considered the founder of *Euthydemia*, which, if admitted, decide him to have been the son of *EUTHYDEMUS*. Neither can we place him subsequent to *MENANDER*, because we have indubitable proof that *EUCRATIDES*, by some means or other, succeeded *MENANDER*, in the rule of the countries dependent on *Bactria ad Caucasum*: had *ANTIMACHUS* governed there, his coins would certainly have been found at *Beghrám*, with those of *EUTHYDEMUS*, who must have preceded him, and of *EUCRATIDES*, who must have followed him, and in common with those of *APOLLODOTUS* and *MENANDER*. Neither did he succeed *MENANDER* in the sovereignty of his Indian conquests; for then his coins would have exhibited Indian characters on the reverses, rather than Bactrian ones: there can be no doubt but that the coins of *ANTIMACHUS* are genuine Bactrians. Convinced that



ANTIMACHUS must have reigned posterior to EUTHYDEMUS, and anterior to EUCRATIDES, while he could neither have preceded APOLLODOTUS, nor succeeded MENANDER, we have no alternative but to place his reign between the two former princes, and to suppose him cotemporary with the two latter: thus nearly yielding decisive proof that he was the son and successor of EUTHYDEMUS in Bactriana proper.

To omit no circumstances likely to throw light upon the subjects under discussion, I advert to the nature and character of the deposit of Bactrian coins, which yielded five of ANTIMACHUS, seven of APOLLODOTUS, and 108 of MENANDER; for matters apparently trivial may sometimes furnish valuable hints. A person, from some motive or other, conceals a sum of money, the coins of which he will possess the larger number are those of the reigning prince; it is however easy to imagine that he may have a few of the prince who preceded in rule, and a few of any neighbouring or cotemporary sovereign. The person, who made the deposit thus preserved for us, we may presume, did so in the reign of MENANDER, which accounts for the notable proportion of that prince's coins; the few of APOLLODOTUS seem to point him out as the predecessor of MENANDER, and the fewer of ANTIMACHUS intimate, that he was a neighbouring and cotemporary prince. The length to which I have carried my observations on these coins, and the topics they involve, might justify my being taxed with prolixity, did they not relate to a subject so interesting and intricate as that of Bactrian history; and I shall conclude them by inserting a new table of the reigns and successions of the Bactrian sovereigns, agreeably to the suppositions, the probability of which I have advocated.

TABLE.

Theodotus I. established his sovereignty	B.C. 255, reigned 12 years....	I to 12 of Bactrian era.
Theodotus II. began to reign	B.C. 243, reigned 23 years....	12 to 35 of do.
Euthydemus began to reign	B.C. 220, reigned 25 years....	35 to 60 of do.
Antimachus began to reign	B.C. 195, reigned 24 years....	60 to 84 of do.
Eucratides began to reign	B.C. 171, reigned 25 years....	84 to 109 of do.
Successor of Eucratides began to reign	B.C. 146, reigned years unknown, 109 to period unknown.	

Note.—The period B.C. 125, fixed for the destruction of the empire, liable to much distrust.

I continue to discover the coins of EUCRATIDES in the same numbers, but have met with none of new types. I have noted that this monarch's coins are not found east of *Kábul*, affording the presumption that his sway did not extend thither.

Among the coins collected this year, I have not discovered one by which we can identify the successor of EUCRATIDES; but among the new which may claim to be considered Bactrian, we have one with the classical name of DIOMEDES.

We are also without any trace of HELIOCLES, who would appear to have no claim to be introduced among the early Bactrian sovereigns;



but if the coin discovered of him be clearly Bactrian, which the reverse probably would decide, he may still be admitted his rank among the later sovereigns of the Bactrian dynasty, or among those arising from its destruction.

We have this year procured intelligible specimens, which enable me to decipher some of those left in doubt in my Memoir of last year; and have fallen upon two or three altogether new, from the characters on the reverse, might be considered Bactrian; at all events, they are Greek, and I submit my opinion on them in the succeeding observations.

With so many coins before us of princes who have more or less pretensions of being Bactrian sovereigns, we may feel tempted to doubt whether the Grecian authority in Bactriana was subverted by the Getæ at so early a period as that assigned, unless the fact be supported by the fullest historical evidence. It may be, the recorded subversion amounted to no more than a temporary inroad of barbarians, which may have indeed involved the loss of royalty in the family of EUCRATIDES, and its assumption by some fortunate leader, who repelled the invasion; the probability appears to be that the Greek power in Bactriana, in the first instance, weakened by the incursions of the Getæ and other Scythic tribes, was ultimately annihilated by the overgrown empire of Parthia. But a Greek authority must have existed to a much later period in the countries west of the Indus, which would appear to have been finally subverted by the Sákyan princes, who had established themselves in the regions east of the Indus. Without attaching extraordinary importance to the hyperbolical strains of a *Carmen Seculare*, we may observe, that HORACE, who flourished about the commencement of the Christian æra, enumerates among the objects of sufficient magnitude to engage the attention of AUGUSTUS, the Bactrian empire, which we would have to have been destroyed above 120 years before the time he wrote :—

“ Tu civitatem quis deceat status  
Curas, et orbis sollicitus, times  
Quid Seres, et regnata Cyro  
Bactra parent, Tanaisque discors.”

*Class Grecian—Series 2. Unrecorded Kings of Bactria.*

I have thought proper to include in this general series all the coins, of whatever description, which may have Bactrian characters on the reverse legends. I by no means however wish to assert that all these princes ruled in Bactriana proper, perhaps no one of them did so. This series at present includes ANTIMACHUS, HERMÆUS I., II., III., DIOMEDES, ANTILAKIDES, AUSIUS\*, ADELPHORTES, PALERKES, BASILIS†, ALOUOKENES, AZU I., II., DEMETRIUS, (?) and three other coins among the unidentified

\* LYSIUS.—ED.

† AZILISOS.—ED.

ones, or in all seventeen names: of these I am willing to transfer *ANTIMACHUS* to the regular Bactrian dynasty, *HERMÆUS* I., II., to the dynasty of *APOLLODOTUS* and *MENANDER*, and *ADELPHORTES*, *BASILIS*, and *Azo*, to a dynasty which I hope to prove, one day, to have existed distinctly at *Massaga*.

*Class Grecian—Series 3. Coins of AGATHOCLES, PANTALEON, &c.*

This year yielded me the same proportion of the coins of these princes, and I suspect we have found two other coins, which, with reference to the characters, may be classed with them, viz. Nos. 30 and 32 of the Greek coins now enumerated: if this be correct, we shall have five princes of this series.

*Class Grecian—Series 4. Coins of the Nysæan Kings.*

Of these kings we have the topes or cenotaphs at *Jelálábád*: there appear to have been two great families; that of *HERMÆUS* and his descendants, whose coins are distinguished by the figure of *HERCULES*, with his club on the reverse, and those of the princes, whose coins have a horseman on the obverse, and the figure of *CERES* on the reverse: to these must unquestionably be added the great king whose coins bear the legend *ΒΑΣΙΛΕΥΣ ΒΑΣΙΛΕΩΝ ΣΩΓΗΡ ΜΕΓΑΣ*, and I make no doubt *UNADPHERROS*: the latter family is the more ancient; and if our views are right, came originally from *Massaga*. There are thirteen topes certainly, perhaps fourteen, at *Jelálábád*, which may safely be referred to these princes; five or six to the family of *HERMÆUS*, and the remainder to that of the others; if three of these be not the topes of saints, rather than of kings: this I infer from their position on eminences, and the absence of coins with the relics found in them.

*Note.*—Of the prince whose coinage is delineated as fig. 37 in the last Memoir, I have procured many other coins: but none enabling me to identify his name: these coins, like the former, all from *Beghrám*.

*Class Indo-Scythic—Series 1 and 2. Coins of KANERKOS and KADPHIS.*

I have discovered that the topes of *Kábul* refer to the families of these princes, as do a number of topes near *Chahárbág*, or *Jelálábád*; but these latter I very much suspect to be duplicates of the former. This year has given us a number of golden medals of these princes, which are noted below.

I have not been yet enabled to locate the capital of the princes whose coins form the other series of this class.

*Recapitulation of Greek coins collected from Beghrám, 1834.*

Copper of Euthydemus, .....	3
Apollodotus, .....	31
Menander, .....	56
Eucratides, .....	92
Diomedes, .....	1
Adelphortes, .....	1

Various, .....	5	
Hermæus I,.....	31	
Hermæus II, .....	5	
Hercules type, .....	179	
Megas,.....	267	
Unadpherros,.....	16	
Antilakides, }		
Lysius, }	21	
Agathocles, .....	19	
Pantaleon, .....	2	
Leonine.....	23	
As fig. 37 of Memoir 1833,.....	14	
Small Nysæans, .....	24	
	<hr/>	
Total,	790	Greek copper coins.
Silver coin (drachma) of Antimachus, ..	1	
	<hr/>	
Total,	791	Greek coins.

## ANALYSIS OF COINS.

[With the present memoir Mr. MASSON furnished drawings of all the coins here enumerated. Many of them however having been already figured in the plates published with our notes on the Ventura collection in June last, we have thought it unnecessary to lithograph the whole, and have consequently made selection of those only which are new types, or have more legible inscriptions than our own. The text, in justice to the author we, have inserted entire, merely substituting the word *No.* for *Fig.* and given a second reference to the plates where such as are new will be found.—ED.]

## Series 1st.—Recorded Kings of Bactria.

*Euthydemus.*

*No. 1. Obverse.*—Bearded bust. [*Pl. II. fig. 1.*]

*Reverse.*—Horse at speed. Legend Greek ΒΑΣΙΛΕΥΣ ΕΥΘΥΔΗΜΟΥ.

*No. 2. Obverse.*—Bearded bust. (*Fig. 2.*)

*Reverse.*—Not represented, same as preceding figure.

*No. 1.* is one of three coins of the same type, two procured from Beghrám, and one from Jelálábád. These are the curious coins with a concave obverse, which were noted in my last Memoir of last year, having then one unrecognizable specimen from Beghrám. The first intelligible specimen was obtained at Jelálábád, on which I was delighted to find the name of EUTHYDEMUS. *Fig. 2* is a single specimen from Beghrám, the obverse not concave.

*Apollodotus.*

*Nos. 3, 4, and 5. Obverses.*—Figure of Elephant. Legend Greek ΒΑΣΙΛΕΥΣ ΑΠΟΛΛΟΔΟΤΟΥ ΣΩΤΗΡΟΥ. (*Fig. 3; see vol. iv. Pl. XXVI. fig. 5.*)

*Reverses.*—Figure of Brahminical Cow. Legend Bactrian.

These Figures represent the types found among seven silver coins of ΑΠΟΛΛΟΔΟΤΟΥ, comprised in a parcel of 121 Bactrian silver coins, purchased from an individual at Kábul, but discovered in the Hazaurehjât. These coins essentially agree, the monograms only varying.

This year's researches has elicited a circular copper coin of this prince, but not represented, being of similar type with his quadrangular coins.

*Menander.*

No. 6. (Fig. 4.) *Obverse*.—Bust, the head bound with fillet or diadem. Legend Greek ΒΑΣΙΛΕΥΣ ΣΩΤΗΡΟΥ ΜΕΝΑΝΔΡΟΥ.

*Reverse*.—Warrior, standing to left; right hand upraised, holding a bundle of darts; left hand holding forth an embossed shield. Monogrammatical characters on either side of the feet. Legend Bactrian.

This fine silver coin was purchased at *Kábul*.


Nos. 7 to 11. (Figs. 6, 8.) *Obverses*.—Busts. Legends as preceding.

*Reverses*.—As in preceding Figure. Legend Bactrian.

These types are selected from 110 silver coins of this prince procured this year, one received as a present in *Kábul*, one procured at *Beghrám*, and 108 procured with the seven of *APOLLODOTUS* just noted. These coins essentially agree, varying principally in the head-dress and position of the busts, and in the position of the figures on the reverses. Figs. 9 and 10 are distinguished by the spear or javelin in the right hand, and the nakedness of the bust: the monogrammatical characters on these coins vary much, and it is remarkable that scarcely any two of the 108 coins found in one parcel appear to have been struck with the same die, the differences in them, however slight, being conclusive as to that fact; it may farther be observed, that copper coins of *MENANDER* are to be found, exhibiting all the types and monogrammatical characters to be found on these silver ones.


No. 12. (Fig. 5.) *Obverse*.—Bust. Legend Greek, as preceding figs.

*Reverse*.—Fish. (Dolphin?) Legend Bactrian.

This fine copper coin was procured from *Beghrám*, the monogrammatical characters .

No. 13. (Fig. 7.) *Obverse*.—Wheel or emblematic figure. Legend Greek, as preceding figs.

*Reverse*.—Palm branch. Legend Bactrian.


This small copper coin, a single specimen was procured from *Beghrám*, the monogrammatical characters  are to be found on the silver coins noted above, as fig. 8.

Class Grecian—Series 2. Unrecorded Kings of Bactria.

*Antimachus.*

No. 14. (Fig. 9.) *Obverse*.—Helmeted and winged female (Victory?) standing to the left, holding in extended right hand a palm branch. Legend Greek ΒΑΣΙΛΕΥΣ ΝΙΚΗΦΟΡΟΥ ΑΝΤΙΜΑΧΟΥ. (See vol. iv. Pl. XXI. fig. 3.)

*Reverse*.—Mounted warrior at speed. Legend Bactrian.

This fine silver coin is one of six silver coins of similar type and size procured this year, one from *Beghrám*, and five in the same parcel as the 108 of *MENANDER* and seven of *APOLLODOTUS* before noticed. The monogram  on the obverse, is also to be met with on the coins of *MENANDER*; as fig. 9 of these plates. Were this monogram interpretable, we should have no difficulty in definitely appropriating these coins.

*Hermæus.*

No. 15. *Obverse*.—Bust, head bound with fillet and diadem. Legend Greek ΒΑΣΙΛΕΥΣ ΣΩΤΗΡΟΥ ΕΡΜΑΙΟΥ. (See vol. iv. Pl. XXIV.)

*Reverse*.—Figure of *JUPITER* enthroned. Legend Bactrian.

No. 16. (Fig. 11.) *Obverse*.—Bust, head bound with fillet or diadem. Legend Greek, as preceding figure.



*Reverse*.—Figure of JUPITER enthroned, with eagle or bird of Jove perched on extended right hand. Legend Bactrian.

These two fine silver coins were purchased at *Kábul*. I have to apologize for having in my memoir of last year, asserted an opinion that HERMÆUS was the founder of the Greek Nysæan dynasty of kings ; although it is certain that he ruled there, (that is at Nysa,) and even more easterly, as is evidenced by his numerous coins found both at Jelálábád and Pesháwar. The Bactrian characters on the reverses of this prince's coins, were not then noted with the attention they ought to have been. And the discovery since of two of his silver coins, (those now delineated,) and a single copper coin corresponding to No. 15, compel us to form other ideas of this prince, and authorize us to consider him, at least for the present, as one of the regular Bactrian dynasty. The enthroned figure on the reverse of No. 16, with the bird of Jove seated on the hand, we presume, admits not a doubt, that the figure itself is intended to represent JUPITER ; and the similar figures on the reverses of the copper coins of this prince, although not manifestly exhibiting the eagle, may be supposed to personify the same deity, and not HERCULES as before imagined. It seems probable, that the figures on the reverses of the silver coins of EUTHYDEMUS may be intended to indicate JUPITER. The copper coins, we had previously found, of HERMÆUS, have very pointed features, and pourtray a prince considerably advanced in years—the two silver coins now before us, with the single copper coin discovered this year, exhibit the features of youth, and justify us in concluding that his reign commenced when he was young, as the great proportion of the copper coins justify the conclusion, that it terminated at an advanced period of his life. We may fairly allow to this prince a reign of twenty-four or twenty-five years, a term which would accurately fill up the period between the demise of EUTHYDEMUS and the succession of EUCRATIDES, or, of that, from the demise of EUCRATIDES, to the alleged destruction of the Bactrian empire by the GETÆ ; but a consideration of the general style of the execution of the coins of HERMÆUS, (although the two coins now under notice are beautiful ones, especially No. 16,) will scarcely allow us to intrude him as the successor of EUTHYDEMUS : it is fair, however, to observe, that the coins of the two princes bear the same figures on the reverses, and that the forms of both are circular. Neither are we willing to admit him to have been the successor of EUCRATIDES, for he would appear to have enjoyed a large reign, which we hardly suppose a prince who was alike a parricide would have done. It would be gratifying to detect the successor of EUCRATIDES in Bactriana proper, and amongst the whole of the coins discovered at Beghrám, holding their execution as the token of their precedence or antiquity, we find none which have equal pretensions with those of HERMÆUS : but this only proves, that he succeeded to his authority in the Caucasian provinces, and this is what we suspect to have been the case ; for when we observe his superior silver coinage, when we are satisfied that his reign was long, and that his dominions extended to the Indus, or beyond that of EUCRATIDES, we repeat we can scarcely believe this powerful prince, and (if we judge from his portrait) beneficent one, to have been the parricide of his father, or him who was vanquished by the GETÆ. The silver coin (No. 16), exhibits a strong resemblance to the silver coin of MENANDER, (No. 6), as does the bust in form and features ; the legend is also similarly arranged. These circumstances may perhaps sanction an inquiry, whether HERMÆUS may not have been the son and successor of MENANDER, depriv-




ed of his Caucasian provinces by EUCRATIDES on the death of his father, and recovering them after the murder of this prince, during the anarchy that then naturally prevailed. It is however more probable, as we have before hinted, that EUCRATIDES committed this act of aggression when MENANDER was still living, and this seems corroborated by all the coins of HERMÆUS found at Beghrám displaying an aged prince, while the coins before us prove, that he also ruled when young; whence we infer, that he must originally have reigned elsewhere, and as we find that his coins are met with very far eastward, we may presume that his original seat of empire was in that quarter, and that from thence he marched to the Caucasus, when the death of EUCRATIDES allowed him the opportunity: and in confirmation of which we find, that the Beghrám coins of this prince refer to the latter part of his reign. The proportion of his copper coins found at Beghrám, may also guide us in our estimate of the duration of his reign there. EUCRATIDES, we suppose, reigned 24 years; in 1833, we found 70 of his coins, and in 1834, 92, or 162 for 2 years; in 1833, we found of the coins of HERMÆUS 34, and in 1834, 31, or 65 for 2 years. Now by the common rule of three process, if 162 yield 24, 65 will yield 9½, say 10 years for the reign of HERMÆUS at Beghrám: but we find that he must have reigned much longer somewhere else, which seems to verify the inferences we have before drawn; and as, we hope, in ANTIMACHUS we have found a son and successor for EUTHYDEMUS, so we hope that in HERMÆUS we have discovered the son and successor of MENANDER. The difference in the execution of the coins of this prince and of other Bactrian kings, as well as the striking diversity in the purity of the Greek characters, may perhaps be accounted for by supposing, that the better coins are those struck at the metropolitan mints, where Greek artists would be found, and that the inferior ones were struck at provincial mints, where, if Greek artists were not to be procured, the more expert native ones would be employed. We have discussed at some length the merits of the coins of HERMÆUS, but let us mislead no one; on subjects so difficult as these Bactrian coins, much is still left to conjecture, and at present, little more can be done than to expose the difficulties that attend them.

#### *Diomedes.*


No. 17. (Fig. 10.) *Obverse*.—Two erect figures, standing to the front, right hands holding spears, swords by the side. Legend Greek ΙΑΕΩΣ.ΝΤΗΡΟΣ ΔΙΟΜΗΔΟΥ.

*Reverse*.—Humped cow. Legend Bactrian.

This is the type of a single quadrangular copper coin procured this year from Beghrám, fortunately presenting without doubt in the legend, the nomen and cognomen. DIOMEDES SOTER. The monogram on the reverse  is also found on the coins of ANTIMACHUS and APOLLODOTUS.

#### *Antilakides.*

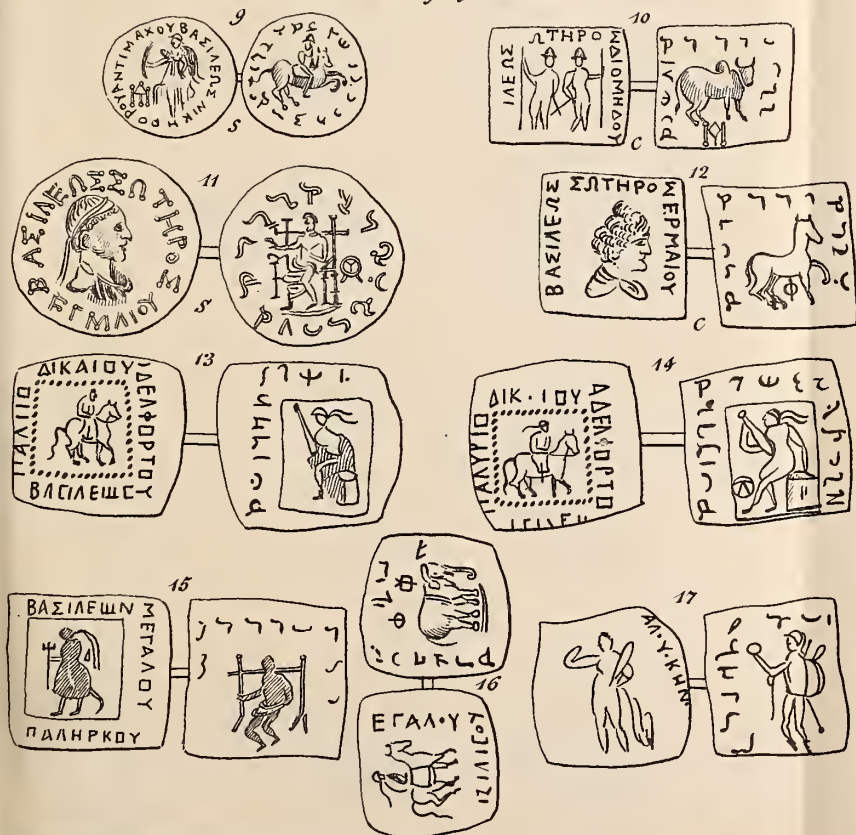
No. 18. *Obverse*.—Bust, the hair of the head behind, bound into a kind of pod resembling a bag-wig. Legend Greek, obscure, but undoubtedly ΒΑΣΙΛΕΩΣ ΝΙΚΗΦΟΡΟΥ ΑΝΤΙΑΚΙΔΟΥ. (See vol. iv. Pl. XXVI. fig. 10.)

*Reverse*.—Two conical emblems, with two palm branches fixed between them. Legend Bactrian. This is a single specimen, (as to the circular form of the coin,) procured this year from Beghrám. The coin no doubt refers to the same prince whose coins are delineated in figs. 13 and 14, of Series 2, Class Grecian, of my last year's memoir. The features of the prince on this coin are much younger than those marked on the quadrangular coins, and the monogram varies, being .

## Grecian Coins - Recorded Kings of Bactria.



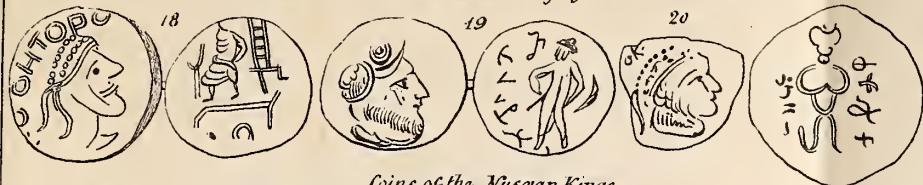
## Unrecorded Kings of Bactria





*Grecian Coins. Unrecorded Kings of Bactria.*

21



*Coins of the Nysaan Kings*



*Indo-Scythic*



*Sassanian Coins*







—The characters on the legend are pure Bactrian, as are those on the coins of *Ausius* (*Lysius*), figs. 15 and 16, of Series 2, Class Grecian, of last year.

*Hermæus.*

No. 19. (Fig. 12.) *Obverse*.—Bust, with tuft or pod on top of head. Legend Greek, ΒΑΣΙΛΕΥΣ ΣΩΤΗΡΟΣ ΕΡΜΑΙΟΥ.

*Reverse*.—Horse. Legend Bactrian.

The type of this coin was given in our memoir of last year (fig. 38). The present year we procured a more perfect specimen from *Jelâlâbâd*: the coin is certainly Bactrian, judging by the characters on the legend of the reverse, and the pod on the head of the bust, together with the nature of the reverse, seem to militate against the opinion, that this coin may represent the quadrangular coinage of *HERMÆUS* before noticed.

*Adelphortes.*

Nos. 20, 21. (Figs. 13, 14.) *Obverse*.—Mounted warrior. Legend Greek, ΒΑΣΙΛΕΥΣ ΣΠΑΡΤΙΟΥ ΔΙΚΑΙΟΥ ΑΔΕΛΦΟΡΤΟΥ. (See vol. iv. Pl. XXI. fig. 9.)

*Reverse*.—Seated female deity, with mace or truncheon in right hand. Legend Bactrian.

This type was represented last year as fig. 44. *Jelâlâbâd* this year yielded two fair specimens, from which the Greek legend is undoubtedly as above inserted; the reverse legend is as manifestly Bactrian.

*Palerkes.*

No. 22. (Fig. 15.) *Obverse*.—Standing figure with trident in right hand. Legend Greek, . . . ΒΑΣΙΛΕΥΝ ΜΕΓΑΛΟΥ ΠΑΛΗΡΚΟΥ. (See vol. iv. Pl. XXI. fig. 9.)

*Reverse*.—Seated figure. Legend Bactrian.

This type was represented last year as fig. 40. A more perfect specimen procured this year from *Kâbul*, identifies the legend to be as above cited, the word ΒΑΣΙΛΕΥΣ being undoubtedly the one not plain.

*Basilis (Azilisos.)*

No. 23. (Fig. 16.) *Obverse*.—Horseman. Legend Greek, . . . portion legible ΕΓΑΛΟΥ ΑΖΙΑΚΟΥ.

*Reverse*.—Elephant. Legend Bactrian.

This is a single specimen procured at *Kâbul*, the legend entire would probably have been ΒΑΣΙΛΕΥΣ ΒΑΣΙΛΕΥΝ ΜΕΓΑΛΟΥ ΒΑΣΙΛΙΚΟΥ.

*Alouokenou (Qy.) (Megalou Nonou?)*

No. 24. (Fig. 17.) *Obverse*.—Figure of *HERCULES* erect, with club. Legend Greek, obscure. (See vol. iv. Pl. XXI. fig. 10.)

*Reverse*.—Infantry soldier, holding wreath in right hand, and armed with sword, spear and shield. Legend Bactrian.

This type was presented last year, as figs. 39 and 43. We have not discovered a single coin of this type during the present year, but introduce this figure here from the probability, on referring to the specimen we held, that the name of the prince was ΑΛΟΥΟΚΗΝΟΥ; the only doubt is as regards the letters KHN.

*Asou (Azou.)*


No. 25. *Obverse*.—Horseman. Legend Greek, portion visible ΒΑΣΙΛΕΥΣ . . . Ε . . . ΑΛΟΥ ΑΣΟΥ. (See vol. iv. Pl. XXII. fig. 9.)


*Reverse*.—Humped cow. Legend Bactrian.

This is one of two specimens procured at *Kâbul*; the entire legend would undoubtedly be ΒΑΣΙΛΕΥΣ ΒΑΣΙΛΕΥΝ ΜΕΓΑΛΟΥ ΑΣΟΥ.

No. 26. *Obverse*.—Humped bull, with monogram over the bump, and another under the bead. Legend Greek, obscure. (*See vol. iv. Pl. XXII. figs. 1, 2, 3.*)

*Reverse*.—Monstrous animal, with symbolical monogram over the back. Legend, characters doubtful.

One of three specimens procured at Jelálábád; the legend is in pure Greek characters, and by comparison is undoubtedly ΒΑΣΙΛΕΩΣ ΒΑΣΙΛΕΩΝ ΜΕΓΑΛΟΥ ΑΣΟΤ. The characters on the reverse legend I apprehend not to be Bactrian, but rather Nysæan. The monograms on these coins vary: one specimen gives the form  over the bump of the bull, and this coincides with the monogram on

No. 25, with  over the animal on the reverse: this form occurs on No. 23.

#### Unidentified Coins.

No. 27. *Obverse*.—Elephant. Legend defaced. (*Vol. iv. Pl. XXI. fig. 11.*)

*Reverse*.—Seated figure with trident. Legend defaced.

This is a single specimen from Kábul. In absence of the legend, it may be pronounced Greek.

No. 28. *Obverse*.—Rampant lion. Legend Greek, obscure.

*Reverse*.—Humped bull. Legend Bactrian. (Omitted by mistake; like Azos coin.)

This type was represented last year; the present has afforded no new specimen, and we introduce it again, that it may not be lost sight of, and because we suspect part of the legend to bear the character ΔΗΜΕΦΟ. We at first inclined to read it ΔΗΜΗΤΡΙΟΥ, but we presume the character Ε, which is decisively plain, will not allow it.

No. 29. (*Pl. II. fig. 18.*) *Obverse*.—Bust, bead bound with fillet or diadem. Legend Greek, portion legible ΟΗΤΟΡΟ.

*Reverse*.—Enthroned figure, probably JUPITER. Legend Bactrian.

This is a single specimen from Beghrám, which had nearly given us the name of another Greek king, for after the insertion of the word ΒΑΣΙΛΕΩΣ, there will be only room for one or two letters more, the first O may perhaps be a Δ.

No. 30. (*Fig. 19.*) *Obverse*.—Helméd bust, bearded.

*Reverse*.—Standing figure. Legend, unknown characters.

This is a single specimen from Beghrám; the characters on the reverse are singular, and may have some affinity with those on the coins of AGATHOCLES and PANTALEON.

No. 31. (*Fig. 20.*) *Obverse*.—Bust, head bound with fillet or diadem. Legend Greek, but defaced.

This is a single specimen from Beghrám. A fragment of a coin, the reverse quite smoothed.

No. 32. (*Fig. 21.*) *Reverse*.—Figure erect, legend, unknown characters.

This is a single specimen from Beghrám, the obverse had been hammered smooth: the characters, besides being singular, appear to vary on either side of the inscription; those to the right resemble the legends of AGATHOCLES and PANTALEON.

#### Class Grecian—Series No. 4. Coins of Nysæan Kings.

Nos. 33 to 40. (*Figs. 23 to 29.*) *Obverses*.—Busts, bead bound with fillet or diadem. Legends Greek, but illegible.

These figures represent the types of the very numerous coins of this description found, which have invariably on the reverse an erect figure of HERCULES, resting on his club. They are given to shew the varieties of the legends, as well

as their incomprehensibility. Of all the coins of this class those of HERMÆUS are only intelligible (figs. 24 and 25, of our last year's memoir), and this prince seems to be entitled to be held the first of the line. From a tope at Jelálábád we extracted ten copper coins similar to fig. 40. The princes of this family appear to have been numerous. At Jelálábád we have five, if not six topes to be referred to them.

No. 41. (Fig. 30.) *Obverse*.—Horseman. Legend Greek, but obscure, portion visible ΟΑΙΑΙΙΙΣΙ.

*Reverse*.—Female figure. Legend Nysæan.

Single specimen from Kábul. The horseman on the obverse, and the legend on the reverse, enable us to refer this coin to the Greek Nysæan dynasty, but the legend is too difficult for interpretation.

*Class Indo-Scythic—Series Nos. 1 and 2.*

Pl. III. Fig. 1. *Obverse*.—Bust of king looking to the right. Sceptre in right hand, four-pronged monogram behind the head. Legend Greek ΒΑCΙΑΕΥC ΟΟΗΜΟ ΚΑΔΦΙCΗC.

This is one of six golden medals of the same prince, extracted from a tope at Gool Durrah near Kábul. The reverse is not given, in no wise differing from that delineated in memoir of last year, fig. 24 of Indo-Scythic coins. The six medals essentially agree; but as the position of the bust varies, and there are other trivial but unimportant differences observable on all of them, they will have been struck at various times.

Fig. 2. *Obverse*.—Bust of king looking to the left. Sceptre in right hand. Legend Greek characters, ΡΑΟ ΝΑΝΟ ΡΑΟ ΟΟΗΡΚΙ ΚΟΡΑΝΟ.

*Reverse*.—Deity or saint looking to the right, lines of glory around the head, four-pronged symbol in front of figure. Legend Greek, ΝΑΝΑ.

This golden medal was found in the same tope with the preceding one and the next to be described. The reverse ΝΑΝΑ, enables us immediately to identify the prince as one of the Kanerkos family. The nature of the legend has been so fully displayed in the Journal of the Asiatic Society, that it becomes needless to dwell on it.

Fig. 3. *Obverse*.—Bust of king looking to the left. Sceptre in right hand. Legend Greek, probably same as on preceding coin, portion legible ΡΑΟΟΟΚΗΡΚΙΚΟ ΡΑΝΟ.

*Reverse*.—Figure of Deity or saint looking to the right. Right hand extended, four-pronged symbol in front of figure. Legend Greek ΗΙΙΡΟ. (? *Mithro*.)

This golden coin found with the preceding ones noted in same tope.

Fig. 4. *Obverse*.—Erect figure of prince looking to the left, right hand in act of sacrificing upon an altar, left hand holding staff. Legend Greek ΝΑΝΟΡΑΟΚΑ ΗΗΡΚΙ ΚΟΡΑ ....

*Reverse*.—Figure of Deity or saint looking to the right, with four-pronged symbol on right hand of, and other in front of, the figure. Legend Greek ΝΑΝΑΡΑΟ.

Gold coin purchased in Kábul, the addition of ΡΑΟ on the obverse legend may be noted clearly, from position indicating holy.

Fig. 5. *Obverse*.—Helméd bust of prince, looking to the left, head surrounded with circles of glory. Sceptre in either hand. Legend Greek ΡΑΟΝΑΝΟ ΡΑΟΟΟΒΟΚΙΚΟΡΑ.

*Reverse*.—Figure of Deity or saint standing to the left, circles of glory around

the head, right hand extended, four-pronged figure in front of figure. Legend Greek  $\Phi$ ΑΡΟ.

Gold medal purchased in *Kábul*. This coin is interesting from the fine bust on the obverse, and from the new legend on the reverse\*.

No. 6. *Obverse*.—Figure of prince clad in mail, in act of sacrifice, left hand supporting trident staff. Legend characters intended for Greek ΠΟΝΟΡΟΟ ΒΟΝΟΟΡΟΒΟΚΟ. (*See observations on Kadphises Coins of vol. III.*)

*Reverse*.—Female figure, standing by side of cow. Legend apparently intended for ΟΡΝΟ.

No. 7. *Obverse*.—Same as preceding. Legend probably intended for ΡΑΟ ΝΟΝΟ ΡΟΟΒΟ ΡΑΟΝΟΚΟ ΝΟΝΟ. (*See ditto.*)

*Reverse*.—Same as preceding. Legend probably ΟΡΝΟ. (*Doubtless OKPO.*)

These two gold coins were purchased at *Kábul*. They appear to be the gold coins of the prince whose copper coinage is delineated in fig. 12, Indo-Scythic coins of last year.

No. 8. *Obverse*.—Seated figure. Legend Greek, portion legible ΚΟΡΑΝΟ.

*Reverse*.—Deity or saint, looking to the right. Four-pronged symbol in front of figure. Legend Greek ΝΑΝΑ. (*See vol. iv. Pl. LI. figs. 4, 13.*)

No. 9. *Obverse*.—Seated figure as in preceding. Legend illegible. (*Do. fig. 5.*)

*Reverse*.—Deity or saint, looking to the left, with wreath in extended right hand. Four-pronged symbol in front of figure. Legend not apparent.

These coins (copper) were procured at *Kábul*, and introduced because, with reference to the seated figure on the obverse, they were of a type different from any we met with last year, although they clearly refer to the ΚΑΝΕΡΚΟΣ family.

Little need be remarked upon these Indo-Scythic coins, which appear to be likely to become more intelligible: suffice it to say, that eight toposes in the neighbourhood of *Kábul*, at least, may be referred to princes of these families of ΚΑΝΕΡΚΟΣ and ΚΑΔΦΗΣ.

#### *Sassanian Coins.*

At the foot of Plate III. are inserted a few specimens out of the 187 silver coins of this class, extracted from the principal Tope of *Hiddah*, near *Jelálábád*. The majority were small coins, like fig. 6.

#### *Monograms.*

Plate IV. comprises all the varieties of monogram hitherto observed on the coins of ΑΠΟΛΛΟΔΟΤΟΣ, ΜΕΝΑΝΔΕΡ, ΕΥΚΡΑΤΙΔΗΣ and their descendants. Most of them are at once perceived to be combinations of Greek letters; but whether used as expressive of dates, or as the initials of the die-engraver or mint-master of the day, is not yet determined, although that they are the latter seems the more probable conjecture. The later symbols on the Indo-Scythic and Leonine coins, &c. are of a different class, and do not seem formed from alphabetical combinations.

## II.—Quotations from original Sanscrit authorities in proof and illustration of Mr. HODGSON's sketch of Buddhism.

[The following paper has been printed in the Transactions of the London Asiatic Society; but, from accidental circumstances to which it is not necessary further to allude, somewhat inaccurately.

\* Probably this is a transposition of the letters of ΑΘΡΟ.—ED.



The shortest way of amending these errors, and supplying at the same time some further information calculated to make the paper more generally intelligible, is to reprint it at Calcutta. This the author has, accordingly, now enabled us to do, the new information being given in the shape of additional notes, which it would indeed have been scarcely worth while to print separately from the text to which they refer. It is not our custom to republish articles already printed, and we do so now only under express invitation from the author, whose researches in Buddhism, aided by local advantages possessed by no other writer, it is of the highest importance to have correctly reported and preserved.—ED.]

#### PREFACE.

Several distinguished orientalists having, whilst they applauded the novelty and importance of the information conveyed by my *Sketch of Buddhism\**, called upon me for proofs, I have been induced to prepare for publication the following translation of significant passages from the ancient books of the *Sangatas*, which still are extant in *Nepál* in the original *Sanscrit*.

These extracts were made for me (whilst I was collecting the works† in question) some years ago by AMIRTA NANDA BANDYA, the most learned *Buddhist* then, or now, living in this country; they formed the materials from which chiefly I drew my sketch; and they would have been long since communicated to the public, had the translator felt sufficiently confident of his powers, or sufficiently assured that enlightened Europeans could be brought to tolerate the ‘ingens indigestaque moles’ of these ‘original authorities;’ which however, in the present instance, are original in a far higher and better sense than those of DE KÖRÖS, or even of UPHAM. Without stopping to question whether the sages who formed the *Bauddha* system of philosophy and religion used *Sanscrit* or high *Prácrit*, or both, or seeking to determine the consequent pretension of Mr. UPHAM’s authorities to be considered original‡, it may be safely said, that those of Mr. DE KÖRÖS can support no claims of the kind.

\* Transactions of the Royal Asiatic Society of London;—necnon, Transactions of Bengal Society, vol. xvi.

† The collection comprises, besides 60 volumes in *Sanscrit*, procured in *Nepál*, the very names of which had previously been unknown, some 250 volumes, in the language of *Tibet*, which were obtained from *Lássa* and *Digarchi*. But for the existence of the latter at Calcutta, Mr. DE KÖRÖS’s attainments in *Tibetan* lore had been comparatively useless. The former or *Sanscrit* books of *Nepál* are the authorities relied on in this paper. Since the first collection was made in *Nepál*, very many new works in the Sanscrit language have been discovered and are yet daily under discovery. The probability now is, that the entire *Kahgyur* and *Stanggyur* may be recovered, in the original language. The whole series has been obtained in that of Tibet, 327 large volumes.

‡ These authorities however, even if allowed to be original, appear to consist entirely of childish legends. I allude to the three published volumes. The



The native works which the latter gentleman relies on are avowedly *Tibetan* translations of my *Sanscrit* originals, and whoever will duly reflect upon the dark and profound abstractions, and the infinite simally-multiplied and microscopically-distinguished personifications of Buddhism, may well doubt whether the language of *Tibet* does or can adequately sustain the weight that has been laid upon it.

*Sanscrit*, like its cognate Greek, may be characterised as a speech "capable of giving a soul to the objects of sense, and body to the abstractions of metaphysics." But, as the *Tibetan* language can have no pretensions to a like power, those who are aware that the *Sangutas* taxed the whole powers of the *Sanscrit* to embody in words their system, will cautiously reserve, I apprehend, for the *Bauddha* books still extant in the classical language of India, the title of original authorities. From such works, which, though now found only in *Nepál*, were composed in the plains of India before the dispersion of the sect, I have drawn the accompanying extracts; and though the merits of the "doing into English" may be small indeed, they will yet, I hope, be borne up by the paramount and (as I suspect) unique authority and originality of my "original authorities," a phrase which, by the way, has been somewhat invidiously, as well as laxly used and applied in certain quarters.

received hypothesis is that the philosophers of *Ayudhya* and *Magadha*, (the acknowledged founders of *Buddhism*) preferred the use of *Sanscrit* to that of *Prácrit*, in the original exposition of their subtle system, appears to me as absurd as it does probable that their successors, as *Missionaries*, resorted to *Prácrit* versions of the original *Sanscrit* authorities, in propagating the system in the remotest parts of the continent and in Ceylon. On this ground, I presume the *Prácrit* works of Ceylon and Ava to be translations, not originals:—a presumption so reasonable that nothing but the production from Ceylon or Ava of original *Prácrit* works, comparable in importance with the *Sanscrit* books discovered in *Nepál*, will suffice to shake it in my mind. Sir W. JONES I believe to be the author of the assertion, that the *Buddhists* committed their system to high *Prácrit* or *Páli*; and so long at least as there were no *Sanscrit* works of the sect forthcoming, the presumption was not wholly unreasonable. It is, however, so now. And Sir W. JONES was not unaware that *Magadha* or *Bihár* was the original head-quarters of *Buddhism*, nor that the best *Sanscrit* lexicon extant was the work of a *Bauddha*; nor that the *Bráhmans* themselves acknowledged the pre-eminent literary merits of their heterodox adversaries.

But for his *Bráhminical* bias therefore, Sir WILLIAM might have come at the truth, that the *Bauddha* philosophers employed the classical language.

Sir WILLIAM was further aware, that the old *Bauddha* inscriptions of *Gayá*, *Sanchi*, *Carli*, &c. are *Sanscrit*, not *Prácrit*. To me this last circumstance is decisive against the hypothesis in question. Throughout *Madhya Des* and the Upper *Deccan*, the numerous monuments of the *Buddhists* bear inscriptions in *Sanscrit*, and *Sanscrit* only. The *Páli* inscription at *Gayá* is recent, and avowedly the work of *Burmese*. [It is chiefly *Burmese*, not *Páli*.—Ed.]

It is still, I observe, questioned amongst us, whether *Bráhmaism* or *Buddhism* be the more ancient creed, as well as whether the latter be of Indian or extra Indian growth. The *Buddhists* themselves have no doubts upon either point. They unhesitatingly concede the palm of superior antiquity to their rivals and persecutors the *Bráhmans*; nor do they in any part of the world hesitate in pointing to India as the cradle of their faith.

Formerly we might be pardoned for building fine-spun theories of exotic upon the African locks of BUDDHA's images: but surely it is now somewhat too late\*, in the face of the abundant direct evidence which we possess, against the exotic theory, to go in quest of presumptions to the time-out-of-mind illiterate Scythians, in order to give to them the glory of originating a system built upon the most subtle philosophy, and all the copious original records of which are inshrined in *Sanscrit*†, a language which, whencesoever primevally derived, had been, when *Buddhism* appeared, for ages proper to the Indian continent.

The *Buddhists* make no serious pretensions to a very high antiquity: never hint at an extra Indian origin.

SAKYA SINHA is, avowedly, *Kshetriya*; and, if his six predecessors had really any historical existence, the books which affirm it, affirm too, that all the six were of *Bráhmaical* or *Kshetriyá* lineage. *Sangata* books treating on the subject of caste never call in question the antique fact of a fourfold division of the Hindu people, but only give a more liberal interpretation to it than the carrent *Bráhmaical* one of their day‡. The Chinese, the Mongols, the Tibetans, the Indo-Chinese, the Ceylonese and other Indian Islanders, all point to India as the fatherland of their creed. The records of *Buddhism* in *Nepál* and in *Tibet*, in both of which countries the people and their mother-tongues are of the *Mongol* stock, are still either *Sanscrit* or avowed translations from it by Indian *pandits*. Nor is there a single record or monument of this faith in existence, which bears intrinsic or extrinsic evidence of an extra Indian origin§.

\* Recent discoveries make it more and more certain, that the cave temples of the Western Coast and its vicinity, are *exclusively* *Bauddha*. Every part of India is illustrated by splendid remains of Buddhism.

† The difference between high *Prácrit* and *Sanscrit*, could not affect this question, though it were conceded that the founders of *Buddhism* used the former and not the latter—a concession however, which should not be facilely made, and to which I wholly demur.

‡ See the *Bauddha* disputation on caste. Royal Asiatic Society's Transactions.

§ See CRAWFURD's remarks on the purely Indian character of all the great sculptural and architectural monuments of *Buddhism* in Java. Also BARROW's remarks to the same effect in his travels in China. The Chinese *Pusá*, is *Visvarupyá Prajná* or the polyform type of Diva Natura. See Oriental Quarterly

The speculations of a writer of Sir W. JONES's day (Mr. JOINVILLE), tending to prove argumentatively, from the characters of *Buddhism* and *Bráhmaism*, the superior antiquity of the former, have been lately revived (see Asiatic Journal No. CLX.) with applause. But besides that fine drawn presumptions are idle in the face of such a mass of direct evidence as we now possess, the reasonings of JOINVILLE appear to me altogether based on errors of fact. *Buddhism* (to hazard a character in few words), is monastic asceticism in morals, philosophical scepticism in religion; and whilst ecclesiastical history all over the world affords abundant instances of such a state of things resulting from gross abuse of the religious sanction, that ample chronicle gives us no one instance of it as a primitive system of belief. Here is a legitimate inference from sound premises. But that *Buddhism* was, in truth, a reform or heresy, and *not* an original system, can be proved by the most abundant direct evidence both of friends and of enemies. The oldest *Sangata* works incessantly allude to the existing superstition as the *Márcharya* or way of the serpent, contradistinguishing their reformation thereof as the *Bóddhi-charya* or way of wise; and the *Bráhma-nical* impugnors of those works (who, upon so plain a fact, could not lie), invariably speak of *Buddhism* as a notorious heresy.

An inconsiderable section of the *Sangatas* alone, ever held the bold doctrine of mortal souls: and the *Swábhávika* denial of a creation of matter by the fiat of an absolutely immaterial being springs, not out of the obesity of barbarian dulness, but out of the over refinement of philosophical ratiocination. JOINVILLE's idea of the speculative tenets of *Buddhism* is utterly erroneous. Many of them are bad indeed: but they are of philosophy all compact, profoundly and painfully subtle-sceptical too, rather than atheistically dogmatic.

At the risk of being somewhat miscellaneous in this preface, I must allude to another point. The lamented ABEL REMUSAT sent me, just before he died, a copy of his essay on the *Sangata* doctrine of the Triad; and Mr. UPHAM, I find, has deduced from REMUSAT's interpretation of that doctrine, the inference (which he supports by reference to sundry expressions in the sacred books of Ceylon), that I am in error in deny-  
Magazine, No. xiv. pp. 218—222, for proofs of the fact that numberless *Bauddha* remains have been mistaken for *Bráhma-nical* by our antiquaries, and even by the natives. In the same work I have proved this in reference to CRAWFURD's Archipelago, Oriental Quarterly, No. xvi. pp. 232, 235.

Yet, no sooner had I shown, from original authorities, how thoroughly *Indian Buddhism* is, than it was immediately exclaimed 'oh! this is *Nepálese* corruption! these are merely popular grafts from *Bráhmaism*.' The very same character belongs to the oldest monuments of *Buddhism* extant, in India and beyond it; and I have traced that character to the highest scriptural authorities.

ing that *Buddhism*, in its first, and most characteristic form, admits the distinction of Clerus et Laicus. It is difficult expressly to define that distinction; but it may be seen in all its breadth in *Bráhmaism* and in Popery; whilst in Islamism, and in the most enthusiastic of the Christian sects, which sprung out of the Reformation, it is wholly lost. According to my view, Apostolic Christianity recognised it not\*; the congregation of the faithful, the Church, was a society of peers, of brethren in the faith, all essentially equal, in gifts, as in place and character. On earth, there were no indispensable mediators, no exclusive professional ones; and such alone I understand to be priests. Again, genuine monachism all over the world, I hold to be, in its own nature, essentially opposed to the distinction of clergyman and layman, though we all know that monastic institutions no sooner are rendered matters of public law and of extensive popular prevalence, than, *ex vi necessitatis*, the distinction in question is superinduced upon them, by the major part of the monks laicising, and the rest *becoming clergy*†.

There are limits to the number of those whom the public can support in idleness: and whoso would eat the bread of the public must perform some duty to the public. Yet who can doubt that the true monk, whether cœnobite or solitary, is he who abandons the world to save his *own* soul; as the true clergyman is he who mixes with the world to save the souls of *others*? The latter in respect to the people or laics has a distinctive function, and, it may be also an exclusive one: the former has no function at all. Amongst entirely monastic sects, then, the exclusive character of priest is objectless and absurd: and who that has glanced an eye over ecclesiastical history knows not that in proportion as sects are enthusiastic, they reject and hate, (though nothing tainted with monachism) the exclusive pretensions of the clergy! Whoever has been able to go along with me in the above reflections can need only to be told that primitive *Buddhism* was entirely monastic, and of an unboundedly enthusiastical genius‡, to be satisfied that it did not recognise the distinction in question. But if, being suspicious of the validity

\* I would not be understood to lay stress on this opinion, which is merely adduced to illustrate my argument.

† History informs us that, soon after monachism supervened upon our holy and eminently social religion, there were in Egypt as many monks almost as peasants. Some of these monks necessarily laicised, and the rest became clergy. The community of the *Gosáins*, and several others, of strictly ascetical origin, exhibit the same necessary change after the sects had become numerous followed.

‡ Its distinguishing doctrine is that finite mind can be enlarged to infinite; all the schools uphold this towering tenet, postponing all others to it. As for the scepticism of the *Swabhavikas* relative to those transcendent marvels, creation and providence, it is sufficient to prove its remoteness from "flat Atheism," simply to point to the *coexistence* of the cardinal tenet first named.



of argumentative inferences, he demand of me simple facts, here they are. In the *Sata Sahasrika*, *Prajna Paramitá*, or *Racha Bhagavati*, and also in the nine *Dharmas* (the oldest and highest written authorities), it is affirmed more or less directly, or is clearly deducible from the context, in a thousand passages (for the subject is not expressly treated), that the only true followers of BUDDHA are monks, the majority being cœnobites, the rest, solitaries. The fullest enumeration of these followers (*Bhikshu Srāvaka* or *Srūmana*, *Chailaka*, and *Arhata* or *Arhana* or *Arhanta*) proves them to have been all monks, tonsured, subject to the usual vows, (nature teaching to all mankind that wealth, women and power, are the grand tempters,) resident in monasteries (*Vihār*) or in deserts, and essentially peers, though of course acknowledging the claims of superior wisdom and piety. The true church, the congregation of the faithful, is constantly said to consist of such only; and I am greatly mistaken indeed if the church in this sense be synonymous with the clergy; or, if the primitive church of BUDDHA recognised an absolutely distinct body such as we (i. e. Catholics, Lutherans, and Kirkmen) ordinarily mean when we speak of the latter. The first mention of an exclusive, professional active, minister of religion, or priest, in the *Bauddha* books, is in those of a comparatively recent date, and not of scriptural authority. Therein the *Vajra Acharya* (for so he is called) first appears arrayed with the ordinary attributes of a priest. But his character is anomalous, as is that of every thing about him; and the learned *Bauddhas* of Nepal at the present day universally admit the falling off from the true faith. We have in these books, *Bhikshus Srāvakas*, *Chailaks*, and *Sākya-Vansikas*\*, bound by their primitive rules for ten days (in memory of the olden time) and then released from them; tonsured, yet married; ostensibly monks, but really citizens of the world.

From any of the above, the *Vajra Acharya*, is drawn indiscriminately; he keeps the keys of the no longer open treasury; and he is surrounded

\* An inscription at *Carli* identifies the splendid *Salivāhana* with the head of the Saka tribe, which is that of SAKYA SINHA. The *Sākya-Vansikas*, or people of the race of *Sākga*, appeared in *Nepāl* as refugees from *Brāhman* bigotry, some time after *Buddhism* had been planted in these hills. *Sākya* is universally allowed to have been the son of king SUDDHODANA, sovereign of *Magadha* or *Bihār*. He is said to have been born in the "*Asthān of Kapila Muni*," at *Ganga Sagar*, according to some; in *Oude*, as others say. His birth place was not necessarily within his father's kingdom. He may have been born when his father was on a pilgrimage to the shrine of the Saint KAPILA. SA'KYA died, according to my authorities, in *Assam*, and left one son named RAHULA BHADRA. The *Sakas* were *Kshettriyās* of the solar line, according to *Bauddha* authorities: nor is it any proof of the contrary that they appear not in the *Brāhmanical* genealogies. See note in the sequel.



with *untensured* followers, who now present themselves for the first time. I pretend not to trace with historical nicety all the changes which marked the progress of *Buddhism* as a public institute and creed of millions up to the period of the dispersion : but I am well aware, that the primitive doctrines were not, because they could not be, *rigidly* adhered to, when what I hold to have been at first the closet speculation of some philosophers, had become the dominant creed of large kingdoms. That the latter character was, however, assumed by *Buddhism* in the plains of India, long before the dispersion, seems certain ; and, as many persons may urge that the thing in question is the dominant public institute, not the closet speculation, and that whatever discipline prevailed before the dispersion must be held for primitive and orthodox, I can only observe that the ancient books of the *Sangatas*, whilst they glance at such changes as I have adverted to, do so in the language of censure ; and that upon the whole, I still strongly incline to the opinion that genuine or primitive *Buddhism* (so I cautiously phrased it, originally) rejected the distinction of Clerus et Laicus ; that the use of the word priest by UPHAM, is generally inaccurate ; and that the *Sangha* of the *Buddhist* triad ought to have been invariably rendered by REMUSAT into ‘congregation of the faithful’ or ‘church,’ and never into ‘clergy’ or ‘priesthood.’ REMUSAT indeed seems to consider (*Observations*, 28-9, and 32), these phrases as synonymous ; and yet the question which their discrimination involves is one which, in respect to our own religion, has been fiercely agitated for hundreds of years ; and still, by the very shades of that discrimination, chiefly marks the subsisting distinction between the various Churches of Christ !

Following the authority he has relied on, Mr. UPHAM was at liberty, therefore, to adopt a sense which would consist with *my* interpretation of phrases such as he alluded to, and which, of course, I found copiously scattered over the works I consulted. I always rendered them advisedly into English, so as to exclude the idea of a priesthood, because I had previously satisfied myself, by separate inquiry and reflection, that that cardinal tenet was repugnant to the genius of the creed, and repudiated by its primitive teachers. This important point may have been wrongly determined by me ; but assuredly the determination of it upon such grounds as Mr. UPHAM’s is perfectly futile. Such words as *Arhanta* and *Bandya*, (which, by the way, are the correct forms of the *Burmese Rahatun* and the *Chinese Bonze*,) no more necessarily mean, priest, clergy, than do the Latin, *fideles* and *milites*, as applied to Christianity ; and as for the word *Sangha*, it is indisputable that it does *not* mean *literally* priest\*, and that it *does* mean *literally* congregation.

\* *Observations*, p. 29.

If, as REMUSAT and UPHAM appear to insist is the case, every monastic follower of BUDDHA be a priest, then *Bandya* or *Bonze*\* must be rendered into English by the word 'clergyman.' But there will still remain as much difference between *Bandya* and *Sangha* as, in Christian estimation, between an ordinary parson of the present day, and one of the inspired primitive professors. Of old, the spirit descended upon all alike; and *Sangha* was this hallowed and gifted congregation. But the glory has passed away, and the term been long sanctified and set apart. So has, in part, and for similar reasons, the word *Arhata*. But *Bandya*, as a generic title, and *Bhikshu*, *Srāvaka*, and *Chailaka*, as specific ones, are still every-day names of every-day people, priests, if it must be so, but, as I conceive, ascetics or monks merely. In the thick night of ignorance and superstition which still envelopes *Tibet*, the people fancy they yet behold *Arhatas* in the persons of their divine *Lāmas*. No such imagination however possesses the heads of the followers of Buddha in *Nepāl*, *Ceylon*, or extra Gangetic India; though in the last mentioned country the name *Arhata* is popularly applied to the modern order of the clergy, an order growing there, as in *Nepāl*, (if my opinions be sound) out of that deviation from the primitive genius and type of the system which resulted necessarily from its popular diffusion as the rule of life and practice of whole nations.

In conclusion I would observe, that, in my apprehension, REMUSAT's interpretation of the various senses of the Triadic doctrine is neither

\* The possible meaning of this word has employed in vain the sagacity of sundry critics. In its proper form of *Bandya*, it is pure *Sanscrit*, signifying a person entitled to reverence, and is derived from *Bandana*.

Equally curious and instructive is it to find in the *Sanscrit* records of *Buddhism* the solution of so many enigmas collected by travellers from all parts of Asia; E. G. ELPHINSTONE's mound is a genuine *Chaitya*, and its proper name is *Manikūlaya*, or the place of the precious relic. The mound is a tomb temple. The 'tumuli eorum Christi altaria' of the poet, is more true of *Buddhism* than even of the most perverted model of Christianity; the cause being probably the same, originally, in reference to both creeds, viz. persecution and martyrdom, with consequent divine honours to the sufferers. The *Bauddhas*, however, have in this matter gone a step further in the descending scale of representative adoration than the Catholics; for they worship the mere image of that structure which is devoted to the inshrining of the relics of their saints; they worship the architectural model or form of the *Chaitya*.

The *Chaitya* of SAMBHU NATH in *Nepāl* is affirmed to cover *Jyoti rupya* SWAYAMBHU, or the self-existent, in the form of flame: nor was there ever any thing exclusive of theism in the connexion of tomb and temple: for *Chaityas* were always dedicated to the celestial *Buddhas*, not only in *Nepāl*, but in the plains of India, as the *Chaityas* of *Sanchi*, of *Gyā*, and of *Big*, demonstrate. The *Dhyani Buddhas* appear in the oldest monuments of the continent and islands.

very complete, nor very accurate. In a religious point of view, by the first member is understood the founder of the creed, and all who, following his steps, have reached the full rank of a *Maha Yánika Buddha*; by the second, the law or scriptures of the sect; and by the third, the congregation of the faithful, or primitive church, or body of original disciples, or even, any and every assemblage of true, i. e. of *conventual ascetical* observers of the law, past or present.

In a philosophical light, the precedence of *Buddha* or of *Dharma* indicates the theistic or atheistic school. With the former, *Buddha* is intellectual essence\*, the efficient cause of all, and underived. *Dharma* is material essence†, the plastic cause, and underived, a co-equal by unity with *Buddha*; or else the plastic cause, as before, but dependent and derived from *Buddha*. *Sangha* is derived from, and compounded of, *Buddha* and *Dharma*, is their collective energy in the state of action; the immediate operative cause of creation, its type or its agent‡. With the latter or atheistic school, *Dharma* is *Diva natura*, matter as the sole entity, invested with intrinsic activity and intelligence, the efficient and material cause of all.

*Buddha* is derivative from *Dharma*, is the active and intelligent force of nature, first put off from it and then operating upon it. *Sangha* is the result of that operation; is embryotic creation, the type and sum of all specific forms, which are spontaneously evolved from the union of *Buddha* with *Dharma*§. The above are the principal distinctions, others there are which I cannot venture here to dwell on.

With regard to REMUSAT's remark, "ou voit que les trois noms sont placés sur le même niveau, comme les trois representations des même êtres dans les planches de M. HODGSON avec cette différence que sur celles-ci, *Sanga* est à droite, et *Dharma* à gauche," I may just add, that the placing of *Sangha* to the right is a merely ritual technicality, conformable to the *pújá* of the *Dakshinácháras*||, and that all the philosophers and religionists are agreed in postponing *Sangha* to *Dharma*.

\* *Bodhanatmaka iti Buddha*, 'the intellectual essence is *BUDHA*.'

† *Dhāranatmaka iti Dharma*, 'the holding, sustaining or containing substance is *Dharma*.' Again, *Prakritiswari iti Prajna*, 'the material goddess is *Prájna*,' one of the names of *DHARMA*. The word *Prájna* is compounded of the intensive prefix *pra*, and *jnyana* wisdom, or *jna* to know. It imports the supreme wisdom of nature. *Dharma* is the universal substratum, is that which supports all form and quality in the versatile world.

‡ *Samudāyatmika iti Sangha*, 'the multitudinous essence is *Sangha* : ' multitude is the diagnosis of the versatile universe, as unity is of that of abstraction.

§ *Prajñaupaytmakam Jaggata*.

|| The theistic sects so call themselves, styling their opposites, the *Swabhavikas* and *Prajnikas*, *Vāmachāras*. The *Paurānikas*, too, often designate the *Tantrikas* by the latter name, which is equivalent to left-handed.

I possess very many drawings exhibiting the arrangement mentioned by REMUSAT ; but all subservient to mere ritual purposes, and consequently worthy of no serious attention. The *Matantara*, or variorum text of the *pujarís* of the present day, displays an infinite variety of formulæ\*, illustrated by corresponding sculptural and pictorial devices, embodied in those works, and transferred from them to the walls and interior of temples existing all over the valley of Nepál.

[To be continued.]

III.—*Sivatherium Giganteum*, a new Fossil Ruminant Genus, from the Valley of the Markanda, in the Siválik branch of the Sub-Himálayan Mountains. By HUGH FALCONER, M. D. Superintendent Botanical Garden, Seháranpur, and Captain P. T. CAUTLEY, Superintendent Doáb Canal.

[The fossil here described is of such importance that we make no apology for reprinting the following article entire from the outcoming volume of the Physical Researches of the Society, having prepared the engraving of the head, so as to serve both editions : it should be remarked, in regard to the engraving, that the figure of the palate and teeth is on rather a larger scale than the rest.—ED.]

The fossil which we are about to describe forms a new accession to extinct Zoology. This circumstance alone would give much interest to it. But in addition, the large size, surpassing the rhinoceros ; the family of Mammalia to which it belongs ; and the forms of structure which it exhibits ; render the *Sivatherium* one of the most remarkable of the past tenants of the globe, that have hitherto been detected in the more recent strata.

Of the numerous fossil mammiferous genera discovered and established by CUVIER, all were confined to the Pachydermata. The species belonging to other families have all their living representatives on the earth. Among the Ruminantia, no remarkable deviation from existing types has hitherto been discovered, the fossil being closely allied to living species. The isolated position, however, of the Giraffe and the Camelidæ, made it probable, that certain genera had become extinct, which formed the connecting links between those and the other genera of the family, and further between the Ruminantia and the Pachydermata. In the *Sivatherium*† we have a ruminant of this description connecting the family with

\* See the classified enumeration of the principal objects of *Buddha* worship appended to this paper. Appendix B.

† We have named the fossil, *Sivatherium*, from SIVA, the Hindú god, and *θηριον bellua*. The Siválik or Sub-Himálayan range of hills, is considered in the Hindu mythology, as the *Lútiáh* or edge of the roof of SIVA's dwelling in the *Himálaya*, and hence they are called the *Siva-ala* or *Sib-ala*, which by an easy transition of sound became the *Seválik* of the English. The fossil has been discovered in a tract which may be included in the *Sevdlík* range, and we have given the name of *Sivatherium* to it, to commemorate this remarkable formation so rich in new animals. Another derivation of the name of the hills, as explained by the *Mahant* or High Priest at *Dekra*, is as follows :

*Seválik* a corruption of *Siva-wála*, a name given to the tract of mountains between the Jumna and Ganges, from having been the residence of Iswara SIVA and his son GANE's, who under the form of an Elephant had charge of the Westerly portion from the village of *Dúdhlí* to the Jumna, which portion is also called *Gangaja*, *gaja* being in Hindi an Elephant. That portion Eastward from *Dúdhlí*, or between that village and *Haridwár*, is called *Deodhar*, from its being the especial residence of *Deota* or Iswara SIVA : the whole tract however between the Jumna and Ganges is called *Siva-ala*, or the habitation of SIVA : unde der. *Seválik*.



the Pachydermata, and at the same time so marked by individual peculiarities as to be without an analogue in its order.

The fossil remain of the *Sivatherium*, from which our description is taken, is a remarkably perfect head. When discovered, it was fortunately so completely enveloped by a mass of stone, that although it had long been exposed to be acted upon as a boulder in a water-course, all the more important parts of structure had been preserved. The block might have been passed over, but for an edging of the teeth in relief from it, which gave promise of something additional concealed. After much labour, the hard crystalline covering of stone was so successfully removed, that the huge head now stands out with a couple of horns between the orbits, broken only near their tips, and the nasal bones projected in a free arch, high above the chaffron. All the molars on both sides of the jaw are present and singularly perfect. The only mutilation is at the vertex of the cranium, where the plane of the occipital meets that of the brow: and at the muzzle, which is truncated a little way in front of the first molar. The only parts which are still concealed, are a portion of the occipital, the zygomatic fossæ on both sides, and the base of the cranium over the sphenoid bone.

The form of the head is so singular and grotesque, that the first glance at it strikes one with surprise. The prominent features are—1st, the great size, approaching that of the elephant: 2d, the immense development and width of the cranium behind the orbits: 3d, the two divergent osseous cores for horns starting out from the brow between the orbits: 4th, the form and direction of the nasal bones, rising with great prominence out of the chaffron, and overhanging the external nostrils in a pointed arch: 5th, the great massiveness, width and shortness of the face forward from the orbits: 6th, the great angle at which the grinding plane of the molars deviates upwards from that of the base of the skull.

Viewed in lateral profile, the form and direction of the horns, and the rise and sweep in the bones of the nose, give a character to the head widely differing from that of any other animal. The nose looks something like that of the rhinoceros; but the resemblance is deceptive, and only owing to the muzzle being truncated. Seen from in front, the head is somewhat wedge-shaped, the greatest width being at the vertex and thence gradually compressed towards the muzzle; with contraction only at two points behind the orbits and under the molars. The zygomatic arches are almost concealed, and nowise prominent: the brow is broad, and flat, and swelling laterally into two convexities; the orbits are wide apart, and have the appearance of being thrown far forward, from the great production of the frontal upwards. There are no crest or ridges: the surface of the cranium is smooth, the lines are in curves, with no angularity. From the vertex to the root of the nose, the plane of the brow is in a straight line, with a slight rise between the horns. The accompanying drawings will at once give a better idea of the form than any description.

Now in detail of individual parts; and to commence with the most important and characteristic, the teeth:

There are six molars on either side of the upper jaw. The third of the series, or last milk molar, has given place to the corresponding permanent tooth, the detrition of which and of the last molar is well advanced, and indicates the animal to have been more than adult.

The teeth are in every respect those of a ruminant, with some slight individual peculiarities.

The three posterior or double molars are composed of two portions or semi-cylinders, each of which incloses, when partially worn down, a double crescent of enamel, the convexity of which is turned inwards. The last molar, as is normal in ruminants, has no additional complication, like that



in the corresponding tooth of the lower jaw. The plane of grinding slopes from the outer margin inwards. The general form is exactly that of an ox or camel, on a large scale. The ridges of enamel are unequally in relief, and the hollows between them unequally scooped. Each semi-cylinder has its outer surface, in horizontal section, formed of three salient knuckles, with two intermediate sinuses; and its inner surface, of a simple arch or curve. But there are certain peculiarities by which the teeth differ from those of other ruminants.

In correspondence with the shortness of jaw, the width of the teeth is much greater in proportion to the length than is usual in the family: the width of the third and fourth molars being to the length as 2.24 and 2.2 to 1.55 and 1.68 inches, respectively: and the average width of the whole series being to the length as 2.13 to 1.76 inches. Their form is less prismatic: the base of the shaft swelling out into a bulge or collar, from which the inner surface slopes outward as it rises: so that the coronal becomes somewhat contracted: in the third molar, the width at the coronal is 1.93, at the bulge of the shaft 2.24. The ridges and hollows on the outer surface descend less upon the shaft, and disappear upon the bulge. There are no accessory pillars on the furrow of junction at the inner side. The crescentic plates of enamel have a character which distinguishes them from all known ruminants: the inner crescent, instead of sweeping in a nearly simple curve, runs zig-zag-wise in large sinuous flexures, somewhat resembling the form in the *Elasmotherium*.

The three double molars differ from each other only in their relative states of wearing. The antepenultimate, being most worn, has the crescentic plates less curved, more approximate and less distinct: the penultimate and last molars are less worn, and have the markings more distinct.

The three anterior or simple molars have the usual form, which holds in Ruminantia, a single semi-cylinder, with but one pair of crescents. The first one is much worn and partly mutilated: the second is more entire, having been a shorter time in use, and finely exhibits the flexuous curves in the sweep of the enamel of the inner crescent: the last one has the simple form of the permanent tooth, which replaces the last milk molar: it also shews the wavy form of the enamel.

Regarding the position of the teeth in the jaw; the last four molars, viz. the three permanent and the last of replacement, run in a straight line, and on the opposite sides are parallel and equi-distant: the two anterior ones are suddenly directed inwards, so as to be a good deal approximated. If the two first molars were not thus inflected, the opposite lines of teeth would form exactly two sides of a square: the length of the line of teeth, and the intervals between the outer surfaces of the four last molars, being almost equal, viz. 9.8 and 9.9 inches respectively.

The plane of detrition of the whole series of molars from rear to front is not horizontal, but in a slight curve, and directed upwards at a considerable angle with the base of the skull: so that when the head is placed, so as to rest upon the occipital condyles and the last molars, a plane through these points is cut by a chord along the curve of detrition of the whole series of molars at an angle of about 45°. This is one of the marked characters about the head:

*Dimensions of the Teeth.*

	Length. Inches.	Breadth. Inches.
Last molar right side, .....	—	2.35
Penultimate do. ....	2.20	2.33
Antepenultimate do. ....	1.63	2.20
Last simple molar, ..	1.55	2.24
Second do. do. ....	1.70	1.95
First do. do. ....	1.70	1.90

				Outer Surfaces.	Inner Surfaces.
Interval between the surfaces of last molar,.....				9.9	5.5
Do.	do.	do.	third molar, .....	9.8	5.5
Do.	do.	do.	second do. ....	8.4	4.5
Do.	do.	do.	first do. ....	6.4	3.2

Space occupied by the line of molars 9.8 inches.

**Bones of the Head and Face.**—From the age of the animal to which the head had belonged, the bones had become ankylosed at their commissures, so that every trace of suture has disappeared, and their limits and connections are not distinguishable.

The frontal is broad and flat, and slightly concave at its upper half. It expands laterally into two considerable swellings at the vertex, and sweeps down to join the temporals in an ample curve; and with no angularity. It becomes narrower forwards, to behind the orbits; and then expands again in sending off an apophysis to join with the malar bone, and complete the posterior circuit of the orbit. The width of the bone where narrowest, behind the orbit, is very great, being 16.2 inches. Partly between and partly to the rear of the orbits, there arise by a broad base, passing insensibly into the frontal, two short thick conical processes. They taper rapidly to a point, a little way below which they are mutilated in the fossil. They start so erect from the brow, that their axis is perpendicular to their basement: and they diverge at a considerable angle. From their base upwards they are free from any rugosities, their surface being smooth and even. They are evidently the osseous cores of two intra-orbital horns. From their position and size they form one of the most remarkable features in the head. The connections of the frontal are nowhere distinguishable, no mark of a suture remaining. At the upper end of the bone the skull is fractured, and the structure of the bone is exposed. The internal and outer plates are seen to be widely separated, and the interval to be occupied by large shells, formed by an expansion of the diploe into plates, as in the elephant. The interval exceeds  $2\frac{1}{2}$  inches in the occipital. On the left side of the frontal, the swelling at the vertex, has its upper lamina of bone removed, and the cast of the cells exhibits a surface of almond-shaped or oblong eminences, with smooth hollows between.

The temporal is greatly concealed by a quantity of the stony matrix, which has not been removed from the temporal fossa. No trace of the squamous suture remains to mark its limits and connection with the frontal. The inferior processes of the bone about the auditory foramen have been destroyed, or are concealed by stone. The zygomatic process is long, and runs forward to join the corresponding apophysis of the jugal bone, with little prominence or convexity. A line produced along it would pass in front, through the tuberosities of the maxillaries, and to the rear along the upper margin of the occipital condyles. The process is stout and thick. The temporal fossa is very long, and rather shallow. It does not rise up high on the side of the cranium: it is overarched by the cylinder-like sides of the frontal bone. The position and form of the articulating surface with the lower jaw are concealed by stone which has not been removed.

There is nothing in the fossil to enable us to determine the form and limits of the parietal bones; the cranium being chiefly mutilated in the region which they occupy. But they appear to have had the same form and character as in the ox: to have been intimately united with the occipitals, and to have joined with the frontal at the upper angle of the skull.

The form and characters of the occipital are very marked. It occupies a large space, having width proportioned to that of the frontal, and considerable height. It is expanded laterally into two alæ, which com-

mence at the upper margin of the foramen magnum, and proceed upwards and outwards. These alæ are smooth, and are hollowed out downwards and outwards from near the condyles towards the mastoid region of the temporal. Their inner or axine margins proceed in a ridge arising from the border of the occipital foramen, diverging from each other nearly at right angles, and enclose a large triangular fossa into which they descend abruptly. This fossa is chiefly occupied by stone in the fossil, but it does not appear shallow, and seems a modification of the same structure as in the elephant. There is no appearance of an occipital crest or protuberance. The bone is mutilated at the sides towards the junction with the temporals. Both here and at its upper fractured margin its structure is seen to be formed of large cells with the diploe expanded into plates, and the outer and inner laminæ wide apart. This character is very marked at its upper margin, where its cells appear to join on with those of the frontal. The condyles are very large, and fortunately very perfect in the fossil; the longest diameter of each is 4.4 inches, and the distance measured across the foramen magnum, from their outer angles, is 7.4 inches: dimensions exceeding those of the elephant. Their form is exactly as in the *Ruminantia*, viz. their outer surface composed of two convexities meeting at a rounded angle: one in the line of the long axis, stretching obliquely backwards from the anterior border of the foramen magnum; on the other forwards and upwards from the posterior margin, their line of commissure being in the direction of the transverse diameter of the foramen. The latter is also of large size, its antero-posterior diameter being 2.3 inches, and the transverse diameter 2.6 inches. The large dimensions of the foramen and condyles must entail a corresponding developement in the vertebræ, and modify the form of the neck and anterior extremities.

The sphenoidal bone, and all the parts along the base of the skull from the occipital foramen to the palate, are either removed, or so concealed by stone, as to give no characters for description.

The part of the brow from which the nasal bones commence is not distinguishable. The suture connecting them with the frontal is completely obliterated: and it is not seen whether they run up into a sinus in that bone, or how they join on with it. Between the horns there is a rise in the brow, which sinks again a little forward. A short way in advance of a line connecting the anterior angles of the orbits, there is another rise in the brow. From this point, which may be considered their base, the nasal bones commence ascending from the plane of the brow, at a considerable angle. They are broad and well arched at their base, and proceed forward with a convex outline, getting rapidly narrower, to terminate in a point curved downwards, which overhangs the external nostrils. For a considerable part of their length they are joined to the maxillaries: but forwards from the point where they commence narrowing, their lower edge is free and separated from the maxillaries by a wide sinus: so that viewed in lateral profile their form very much resembles the upper mandible of a hawk, detached from the lower. Unluckily in the fossil, the anterior margins of the maxillaries are mutilated, so that the exact length of the nasal bone that was free from connection with them cannot be determined. As the fossil stands, about four inches of the lower edge of the nasals, measured along the curve, are free. The same mutilation prevents its being seen how near the incisives approached the nasals, with which they do not appear to have been joined. This point is one of great importance, from the structure it implies in the soft parts about the nose. The height and form of the nasal bones, are the most remarkable feature in the head: viewed from above they are seen to taper rapidly from a broad base to a sharp point; and the vertical height of their most convex part above the brow at their base, is  $3\frac{1}{2}$  inches.



The form of the maxillaries is strongly marked in two respects : 1st, their shortness compared with their great width and depth : 2nd, in the upward direction of the line of alveoli from the last molar forwards, giving the appearance (with the licence of language intended to convey an idea of resemblance without implying more) as if the face had been pushed upwards to correspond with the rise in the nasals ; or fixed on at an angle with the base of the cranium. The tendency to shortness of the jaw was observed in the dimensions of the teeth, the molars being compressed, and their width exceeding their length to an extent not usual in the Ruminantia. The width apart, between the maxillaries, was noticed before ; the interval, between the outer surfaces of the alveoli, equalling the space in length occupied by the line of molars. The cheek tuberosities are very large and prominent, their diameter at the base being 2 inches, and the width of the jaw over them being 12.2 inches, whereas at the alveoli it is but 9.8 inches. They are situated over the third and fourth molars ; and proceeding up from them towards the malar, there is an indistinct ridge on the bone. The infra-orbital foramen is of large size, its vertical diameter being 1.2 inch ; it is placed over the first molar, as in the ox and deer tribe. The muzzle portion of the bone is broken off at about 2.8 inches from the 1st molar, from the alveolar margin of which, to the surface of the diastema, there is an abrupt sink of 1.7 inch. The muzzle is here contracted to 5.8 inches, and forwards at the truncated part to about 4.1. The palatine arch is convex from rear to front, and concave across. No trace of the palatine foramina remains, nor of the suture with the proper palatine bones. The sphæno-palatine apophyses and all back to the foramen magnum\* are either removed or concealed in stone. In front, the mutilation of the bone, at the muzzle, does not allow it to be seen, how the incisive bones were connected with the maxillaries : but it appears that they did not reach so high on the maxillaries as the union of the latter with the nasals. The same cause has rendered obscure the connexions of the maxillaries with the nasals, and the depth and size of the nasal echancure or sinus.

The jugal bone is deep, massive and rather prominent. Its lower border falls off abruptly in a hollow descending on the maxillaries : the upper enters largely into the formation of the orbit. The posterior orbital process unites with a corresponding apophysis of the frontal, to complete the circuit of the orbit behind. The zygomatic apophysis is stout and thick, and rather flat. No part of the arch, either in the temporal or jugal portions, is prominent : the interval between the most salient points being greatly less than the hind part of the cranium, and slightly less than the width between the bodies of the jugals.

The extent and form of the lachrymals, cannot be made out, as there is no trace of a suture remaining. Upon the fossil, the surface of the lachrymary region passes smoothly into that of the adjoining bones. There is no perforation of the lower and anterior margin of the orbit by lachrymary foramina, nor any hollow below it indicating an infra-orbital or lachrymary sinus. It may be also added, what was omitted before, that there is no trace of a superciliary foramen upon the frontal.

The orbits are placed far forwards, in consequence of the great production of the cranium upwards, and the shortness of the bones of the face. Their position is also rather low, their centre being about 3.6 inches below the plane of the brow. From a little injury done in chiseling off the stone, the form or circle of the different orbits does not exactly correspond. In the one of the left side, which is the more perfect, the long

\* With the exception of a portion of the basilar region, which resembles that of the Ruminants.

axis makes a small angle with that of the plane of the brow: the antero-posterior diameter is 3.3 inches, and the vertical 2.7 inches. There is no prominence or inequality in the rim of the orbits, as in the *Ruminantia*. The plane of the rim is very oblique: the interval between the upper or frontal margins of the two orbits being 12.2 inches, and that of the lower or molar margin 16.2 inches.

\* *Dimensions of the Skull of the Sivatherium Giganteum.*

Eng. Inches. Mètres.

From the anterior margin of the foramen magnum to the alveolus of 1st molar, .....	18.85	.478
From do. to the truncated extremity of the muzzle, .....	20.6	.5268
From do. to the posterior margin of the last molar, .....	10.3	.262
From the tip of the nasals to the upper fractured margin of the cranium, .....	18.0	.4568
From do. do. to do. along the curve, .....	19.0	.4822
From do. do. along the curve, to where the nasal arch begins to rise from the brow, .....	7.8	.198
From the latter point to the fractured margin of the cranium, ....	11.2	.284
From the tip of the nasals to a chord across the tips of the horns, ..	8.5	.216
From the anterior angle, right orbit, to the first molar, .....	9.9	.251
From the posterior do. do. to the fractured margin of the cranium, ..	12.1	.3075
Width of cranium at the vertex (mutilation at left side restored), about .....	22.0	.559
Do. between the orbits, upper borders, .....	12.2	.3095
Do. .... do. lower borders, .....	16.2	.4108
Do. behind the orbits at the contraction of the frontal, .....	14.6	.3705
Do. between the middle of the zygomatic arches, .....	16.4	.4168
Do. between the bodies of the malar bones, .....	16.62	.422
Do. base of the skull behind the mastoid processes (mutilated on both sides), .....	19.5	.496
Do. between the cheek tuberosities of the maxillaries, .....	12.2	.3095
Do. of muzzle portion of the maxillaries in front of the first molar, ..	5.8	.149
Do. of do. where truncated (partly restored), .....	4.1	.104
Do. between the outer surfaces of the horns at their base, .....	12.5	.312
Do. .. do. .... do. fractured tips of ditto, .....	13.65	.347
Perpendicular from a chord across tips of do. to the brow, .....	4.2	.165
Depth from the convexity of the occipital condyles to middle of frontal behind the horns, .....	11.9	.302
Do. from the body of the sphenoidal to do. between the horns, ....	9.94	.252
Do. from middle of the palate between the 3rd and 4th molars do. at root of the nasals, .....	7.52	.192
Do. from posterior surface last molar to extremity of the nasals, ..	13.0	.331
Do. from grinding surface penultimate molar to root of the nasals, ..	10.3	.262
Do. from the convexity near the tip of the nasals to the palatal surface in front of the first molar, .....	5.53	.14
Depth from middle of the alæ of the occipital to the swell at vertex of frontal, .....	8.98	.228
Do. from inferior margin of the orbit to grinding surface 5th molar, ..	7.3	.186
Do. from the grinding surface 1st molar to edge of the palate in front of it, .....	2.6	.066
Space from the anterior angle of orbit to tip of the nasals, .....	10.3	.2595
Antero-posterior diameter left orbit, .....	3.3	.084
Vertical do. do. ....	2.7	.0685
Antero-posterior diameter of the foramen magnum, .....	2.3	.058
Transverse do. do. ....	2.6	.066
Long diameter of each condyle, .....	4.4	.112
Short or transverse do. of do. ....	2.4	.0603
Interval between the external angles of do. measured across the foramen, .....	7.4	.188

Among a quantity of bones collected in the neighbourhood of the spot in which the skull was found, there is a fragment of the lower jaw of a very large ruminant, which we have no doubt belonged to the *Sivatherium*:

\* To facilitate comparison with the large animals described in CUVIER's *Ossemen Fossiles*, the dimensions are also given in French measure.



and it is even not improbable that it came from the same individual with the head described. It consists of the hind portion of the right jaw, broken off at the anterior third of the last molar. The coronoid apophysis, the condyle, with the corresponding part of the ramus, and a portion of the angle are also removed. The two posterior thirds only, of the last molar remain; the grinding surface partly mutilated, but sufficiently distinct to show the crescentic plates of enamel, and prove that the tooth belonged to a ruminant. The outline of the jaw in vertical section, is a compressed ellipse, and the outer surface more convex than the inner. The bone thins off, on the inner side towards the angle of the jaw, into a large and well marked muscular hollow: and running up from the latter, upon the ramus towards the foramen of the artery, there is a well defined furrow, as in the Ruminantia. The surface of the tooth is covered with very small rugosities, and striæ, as in the upper molars of the head. It had been composed of three semi-cylinders, as is normal in the family, and the advanced state of its wearing proves the animal from which it proceeded to have been more than adult.

The form and relative proportions of the jaw agree very closely with those of the corresponding parts of a buffalo. The dimensions compared with those of the buffalo and camel are thus:

	<i>Sivatherium.</i>	<i>Buffalo.</i>	<i>Camel.</i>
Depth of the jaw from the alveolus last molar, . . . .	4.95 inch.	2.65 inch.	2.70 inch.
Greatest thickness of do. . . . .	2.3	1.05	1.4
Width of middle of last molar, . . . . .	1.35	0.64	0.76
Length of posterior $\frac{2}{3}$ d of do. . . . .	2.15	0.95	1.15

No known ruminant, fossil or existing, has a jaw of such large size; the average dimensions above given being more than double those of a Buffalo, which measured in length of head 19.2 inches (.489 mètres); and exceeding those of the corresponding parts of the rhinoceros. We have therefore no hesitation in referring the fragment to the *Sivatherium Giganteum*.

The above comprises all that we know regarding the osteology of the head from an actual examination of the parts. We have not been so fortunate hitherto, as to meet with any other remain, comprising the anterior part of the muzzle either of the upper or lower jaw\*. We shall now proceed to deduce the form of the deficient parts, and the structure of the head generally, to the extent that may be legitimately inferred, from the data of which we are in possession.

Notwithstanding the singularly perfect condition of the head, for an organic remain of such enormous size, we cannot but regret the mutilation at the muzzle and vertex, as it throws a doubt upon some very interesting points of structure in the *Sivatherium*: 1st, the presence or absence of incisive and canine teeth in the upper jaw, and their number and character if present; 2nd, the number and extent of the bones which enter into the basis of the external nostrils; and 3rd, the presence or absence of two horns on the vertex, besides the two intra-orbital ones.

\* In a note received from Captain CAUTLEY while this paper is in the press, that gentleman mentions the discovery of a portion of the skeleton of a *Sivatherium* in another part of the hills: See *Journal As. Soc. Vol. IV.* "During my recent trip to the *Siválíks* near the Pinjór valley, the field of Messrs. BAKER and DURAND's labours, I regretted much my inability to obtain the dimensions of one of the most superb fossils I suppose that ever was found. It was unfortunately discovered and excavated by a party of work people employed by a gentleman with whom I was unacquainted; and although I saw the fossil when in the rock, I was prevented from getting the measurements afterwards. This specimen appeared to consist of the femur and tibia, with the tarsal, metatarsal, and phalanges of our *Sivatherium*." It is much to be regretted that such an opportunity should have been lost of adding to the information already acquired of this new and gigantic Ruminant.—SEC.

Regarding the first point, we have nothing sufficient to guide us with certainty to a conclusion, as there are ruminants both with and without incisives and canines in the upper jaw; and the *Sivatherium* differs most materially in structure from both sections. But there are two conditions of analogy which render it probable that there were no incisives. 1. In all ruminants which have the molars in a contiguous and normal series, and which have horns on the brow, there are no incisive teeth. In the camel and its congeners, where the anterior molars is unsymmetrical and separated from the rest of the series by an interval, incisives are present in the upper jaw. The *Sivatherium* had horns, and its molars were in a contiguous series: it is therefore probable that it had no incisives. Regarding the canines there is no clue to a conjecture, as there are species in the same genus of ruminants both with and without them. 2. The extent and connections of the incisive bones are points of great interest, from the kind of developement which they imply in the soft parts appended to them.

In most of the horned ruminantia, the incisives run up by a narrow apophysis along the anterior margins of the maxillary bones, and join on to a portion of the sides of the nasals; so that the bony basis of the external nostrils is formed of but two pairs of bones, the nasals and the incisives. In the camel, the apophyses of the incisives terminate upon the maxillaries without reaching the nasals, and there are three pairs of bones to the external nostrils, the nasals, maxillaries and incisives. But neither in the horned ruminants, nor in the camel and its congeners, do the bones of the nose rise out of the plane of the brow with any remarkable degree of saliency, nor are their lower margins free to any great extent towards the apex. They are long slips of bone, with nearly parallel edges, running between the upper borders of the maxillaries, and joined to the ascending process of the incisive bone, near their extremity, or connected only with the maxillaries; but in neither case projecting so as to form any considerable re-entering angle, or sinus, with these bones.

In our fossil, the form and connections of the nasal bones, are very different. Instead of running forward in the same plane with the brow, they rise from it at a rounded angle of about  $130^{\circ}$ , an amount of saliency without example among ruminants, and exceeding what holds in the rhinoceros, tapir, and palæotherium, the only herbivorous animals with this sort of structure. Instead of being in nearly parallel slips, they are broad and well arched at their base, and converge rapidly to a sharp tip, which is hooked downwards, over-arching the external nostrils. Along a considerable portion of their length they are unconnected with the adjoining bones, their lower margins being free and so wide apart from the maxillaries, as to leave a gap or sinus of considerable length and depth in the bony parietes of the nostrils. The exact extent to which they are free, is unfortunately not shown in the fossil, as the anterior margin of the maxillaries is mutilated on both sides, and the connection with the incisives destroyed. But as the nasal bones shoot forward beyond the mutilated edge of the maxillaries, this circumstance, together with their well defined outline and symmetry on both sides of the fossil, and their rapid convergence to a point with some convexity, leaves not a doubt that they were free to a great extent and unconnected with the incisives.

Now to determine the conditions in the fleshy parts, which the structure in the bony parietes of the nostrils entails.

The analogies are to be sought for in the ruminantia and pachydermata.

The remarkable saliency of the bones of the nose, in the *Sivatherium*, has no parallel, in known ruminants, to guide us; and the connection of the nasals with the incisives, or the reverse, does not imply any important difference in structure in the family. In the Bovine section, the Ox and the Buffalo have the nasals and incisives connected: whereas they are

separate in the *Yák\** and *Aurochs*. In the *Camel*, they are also separate, and this animal has greater mobility in the upper lip than is found in other ruminants.

In the *Pachydermata*, both these conditions of structure are present and wanting in different genera ; and their presence or absence is accompanied with very important differences in the form of the corresponding soft parts. It is therefore in this family that we are to look for an explanation of what is found in the *Sivatherium*.

In the *Elephant* and *Mastodon*, the *Tapir*, *Rhinoceros*, and *Palæotherium*, there are three pairs of bones to the external nostrils ; the nasals, the maxillaries, and incisives†. In all these animals, the upper lip is highly developed, so as to be prehensile, as in the *Rhinoceros*, or extended into a trunk, as in the *Elephant* and *Tapir* ; the amount of developement being accompanied with corresponding difference in the position and form of the nasal bones. In the *Rhinoceros*, they are long and thick, extending to the point of the muzzle, and of great strength to support the horns of the animal : and the upper lip is broad, thick, and very mobile, but little elongated. In the *Elephant*, they are very short, and the incisives enormously developed for the insertion of the tusks, and the trunk is of great length. In the *Tapir*, they are short and free, except at the base, and projected high above the maxillaries ; and the structure is accompanied by a well developed trunk. In the other *Pachydermatous* genera, there are but two pairs of bones to the external nostrils, the nasals and the incisives : the latter running up so as to join on with the former ; and the nasals, instead of being short and salient, with a sinus laterally between them and the maxillaries, are long, and run forward, united to the maxillaries, more or less resembling the nearly parallel slips of the *Ruminantia*. Of this genera, the *Horse* has the upper lip endowed with considerable mobility ; and the lower end of the nasals is at the same time free to a small extent. In all the other genera, there is nothing resembling a prehensile organ in the upper lip.

In the *Sivatherium*, the same kind of structure holds, as is found in the *Pachydermata* with trunks. Of these it most nearly resembles the *Tapir*. It differs chiefly in the bones of the nose being larger and more salient from the *Chaffron* ; and in there being less width and depth to the nasomaxillary sinus, than the *Tapir* exhibits. But as the essential points of structure are alike in both, there is no doubt that the *Sivatherium* was invested with a trunk like the *Tapir*.

This conclusion is further borne out by other analogies, although more indirect than that afforded by the nasal bones.

1st.—The large size of the infra-orbitary foramen. In the fossil, the exact dimensions are indistinct, from the margin having been injured in the chiseling off of the matrix of stone : the vertical diameter we make out to be 1.2 inch, which perhaps may be somewhat greater than the truth ; but any thing approaching this size, would indicate a large nerve for transmission, and a highly developed condition of the upper lip.

2nd.—The external plate of the bones of the cranium is widely separated from the inner, by an expansion of the diploe in vertical plates, forming large cells, as in the cranium of the *Elephant* : and the occipital is expanded laterally into alæ, with a considerable hollow between, as in the *Elephant*. Both these conditions are modifications of structure, adapted for supplying an extensive surface for muscular attachment, and imply a thick fleshy neck, with limited range of motion ; and, in more remote sequence, go to prove the necessity of a trunk.

\* CUVIER. *Ossements Fossiles*, tome iv. p. 131.

† CUVIER. *Ossements Fossiles*, tome iii. p. 29.



3rd.—The very large size of the occipital condyles, which are greater both in proportion, and in actual measurement, than those of the Elephant, the interval between their outer angles, taken across the occipital foramen, being 7.4 inches. The atlas, and the rest of the series of cervical vertebræ, must have been of proportionate diameter to receive and sustain the condyles, and surrounded by a large mass of flesh. Both these circumstances would tend greatly to limit the range of motion of the head and neck. But to suit the herbivorous habits of the animal, it must have had some other mode of reaching its food; or the vertebræ must have been elongated in a ratio to their diameter, sufficient to admit of free motion to the neck. In the latter case, the neck must have been of great length, and to support it and the load of muscles about it, an immense developement would be required in the spinal apophysis of the dorsal vertebræ, and in the whole anterior extremity, with an unwieldy form of the body generally. It is therefore more probable that the vertebræ were condensed, as in the Elephant, and the neck short and thick, admitting of limited motion to the head: circumstances indirectly corroborating the existence of a trunk.

4th.—The face is short, broad, and massive, to an extent not found in the Ruminantia, and somewhat resembling that of the Elephant, and suitable for the attachment of a trunk.

Next with regard to the horns:—

There can be no doubt, that the two thick, short, and conical processes between the orbits, were the cores of horns, resembling those of the Bovine and Antilopine sections of the Ruminantia. They are smooth, and run evenly into the brow without any burr. The horny sheaths which they bore, must have been straight, thick, and not much elongated. None of the bicorned Ruminantia have horns placed in the same way, exactly between and over the orbits: they have them more or less to the rear. The only ruminant which has horns similar in position is the four-horned Antelope\* of Hindustân, which differs only in having its anterior pair of horns a little more in advance of the orbits, than occurs in the *Sivatherium*. The correspondence of the two at once suggest the question, “had the *Sivatherium* also two additional horns on the vertex?” The cranium in the fossil is mutilated across at the vertex, so as to deprive us of direct evidence on the point, but the following reasons render the supposition at least probable:

1st.—As above stated, in the bi-cavicorned Ruminantia, the osseous cores are placed more or less to the rear of the orbits.

2nd.—In such known species as have four horns, the supplementary pair is between the orbits, and the normal pair well back upon the frontal.

3rd.—In the Bovine section of Ruminantia, the frontal is contracted behind the orbits, and upwards from the contraction, it is expanded again into two swellings, at the lateral angles of the vertex, which run into the bases of the osseous cores of the horns. This conformation does not exist in such of the Ruminantia as want horns, or as have them approximated on the brow. It is present in the *Sivatherium*.

On either supposition, the intra-orbitary horns are a remarkable feature in the fossil: and if they were a solitary pair on the head, the structure, from their position, would perhaps be more singular, than if there had been two additional horns behind.

Now to estimate the length of the deficient portion of the muzzle, and the entire length of the head:—

In most of the Ruminantia, where the molars are in a contiguous uninterrupted series, the interval from the first molar to the anterior border of the incisive bones is nearly equal to the space occupied by the molars; in some greater, in some a little less, and generally the latter. In other

\* The *Tetracerus* or *Antelope Quadricornis* and *Chekara* of authors.





# SIVATHERIUM

*on a scale of one-seventh*

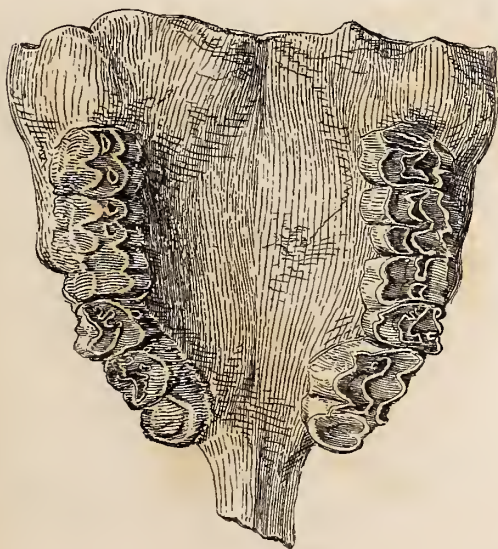
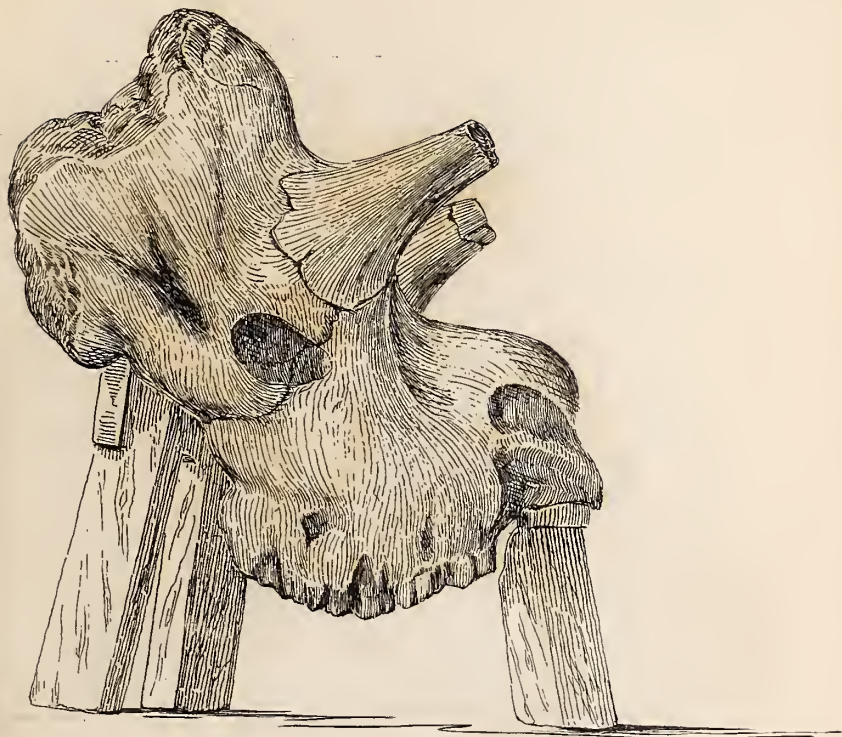


*Etched by Jas Kinsey from drawings by Capt. Coultley*

GIGANTEUM.

Plate I.

*of the original.*





Ruminantia, such as the Camelidæ, where the anterior molars are insymmetrical with the others, and separated from them by being placed in the middle of the diasteme, this ratio does not hold; the space from the first molar to the margin of the incisives being less than the line of molars. In the Sivatherium, the molars are in a contiguous series, and if on this analogy we deduce the length of the muzzle, we get nearly 10 inches for the space from the first molar to the point of the incisives; and 28.85 inches for the whole length of the head, from the border of the occipital foramen to the margin of the incisives; these dimensions may be a little excessive, but we believe them not to be far out, as the muzzle would still be short for the width of the face, in a ruminant.

The orbits next come to be considered. The size and position of the eye form a distinguishing feature between the Ruminantia and the Pachydermata. In the former, it is large and full, in the latter, smaller and sunken; and the expression of the face is more heavy in consequence. In the Sivatherium the orbit is considerably smaller in proportion to the size of the head than in existing ruminants. It is also placed more forward in the face, and lower under the level of the brow. The rim is not raised and prominent, as in the Ruminantia, and the plane of it is oblique: the interval between the orbits at their upper margin being 12.2 inches, and at the lower, 16.2 inches. The longitudinal diameter exceeds the vertical in the ratio of 5 to 4 nearly, the long axis being nearly in a line from the nasomaxillary sinus across the hind limb of the zygomatic circle. From the above we infer that the eye was smaller and less prominent than in existing ruminants: and that the expression of the face was heavier and more ignoble, although less so than in the Pachydermata, excepting the horse; also that the direction of vision was considerably forwards, as well as lateral, and that it was cut off towards the rear.

This closes what we have been led to infer regarding the organs of the head. With respect to the rest of the skeleton, we have nothing to offer, as we are not at present possessed of any other remains which we can with certainty refer to the Sivatherium\*. Among a quantity of bones† collected from the same neighbourhood with the head fossil, there are three singularly perfect specimens of the lower portions of the extremities of a large ruminant, belonging to three legs of one individual. They greatly exceed the size of any known ruminant, and excepting the Sivatherium Giganteum, there is no other ascertained animal of the order, in our collection, of proportionate size to them. We forbear from further noticing them at present, as they appear small in comparison for our fossil: and besides, there are indications in our collection, in teeth and other remains, of other large ruminants, different from the one we have described.

The form of the vertebræ, and more especially of the carpi and tarsi, are points of great interest, to be ascertained; as we may expect modifications of the usual type adapted to the large size of the animal. From its bulk and armed head, few animals could be strong enough to contend with it, and we may expect that its extremities were constructed more to give support, than for rapidity of motion. But, in the rich harvest which we still hope to reap in the valleys of the *Markanda*, it is probable that specimens to illustrate the greater part of the osteology of the Sivatherium will at no very distant period be found.

\* See Note to page 17.—SEC.

† We note here a very perfect cervical vertebræ of a Ruminant in our possession, which must have belonged to an animal of proportions equal to that of the Sivatherium, but from certain characters, we are inclined to suspect that it is allied to some other gigantic species of Ruminant, of the existence of which we have already tolerable certainty. Of the existence of the Elk, and a species of Camelidæ, Lieut. BAKER of the Engineers has shewn us ample proof.



The structure of the teeth suggests an idea regarding the peculiarities of the herbivorous habits of the animal. In the description it was noticed that the inner central plate of enamel ran in a flexuous sweep, somewhat resembling what is seen in the *Elasmotherium*, an arrangement evidently intended to increase the grinding power of the teeth. It may hence be inferred, that the food of the *Sivatherium* was less herbaceous than that of existing horned ruminants, and derived from leaves and twigs; or that as in the horse, the food was more completely masticated, the digestive organs less complicated, the body less bulky, and the necessity of regurgitation from the stomach less marked than in the present Ruminantia.

The following dimensions, contrasted with those of the Elephant and Rhinoceros, will afford a tolerably accurate idea of the size of the *Sivatherium*. They are characteristic, although not numerous:—

	Indian 1-horned		
	Elephant.	<i>Sivatherium</i> .	Rhinoceros.
From margin of foramen magnum to the first molar, .....	23.10 inch.	18.85 inch.	24.9 inch.
Greatest width of the cranium, .....	26.0	22.0	12.05
Do. do. of face between the malar bones, ....	18.5	16.62	9.20
Greatest depth of the skull, .....	17.80	11.9	11.05
Long diameter of the foramen magnum, ....	2.55	2.6	2.6
Short ..... do. .... do. .... do. ....	2.4	2.3	1.5
Average of the above, .....	15.06	12.38	10.22

If the view which we have taken of the fossil be correct, the *Sivatherium* was a very remarkable animal, and it fills up an important blank in the interval between the Ruminantia and Pachydermata. That it was a ruminant, the teeth and horns most clearly establish; and the structure which we have inferred of the upper lip, the osteology of the face, and the size and position of the orbit, approximate it to the Pachydermata. The circumstance of any thing approaching a proboscis is so abnormal for a ruminant, that at the first view, it might raise a doubt, regarding the correctness of the ordinal position assigned to the fossil; but when we inquire further, the difficulty ceases.

In the Pachydermata, there are genera with a trunk, and others without a trace of it. This organ is therefore not essential to the constitution of the order, but accidental to the size of the head, or habits of the animal in certain genera. Thus in the Elephant, nature has given a short neck to support the huge head, the enormous tusks and the large grinding apparatus of the animal; and by such an arrangement, the construction of the rest of the frame is saved from the disturbance which a long neck would have entailed. But as the lever of the head became shortened, some other method of reaching its food became necessary; and a trunk was appended to the mouth. We have only to apply analogous conditions to a ruminant, and a trunk is equally required. In fact, the Camel exhibits a rudimentary form of this organ, under different circumstances. The upper lip is cleft; each of the divisions is separately movable and extensible, so as to be an excellent organ of touch.

The fossil was discovered near the *Markanda* river, in one of the small valleys which stretch between the *Kyárda-dún* and the valley of *Pinjór*, in the *Siválík* or sub-Himálavan belt of hills, associated with bones of the fossil Elephant, Mastodon, Rhinoceros, Hippopotamus, &c. So far as our researches yet go, the *Sivatherium* was not numerous. Compared with the Mastodon and Hippopotamus, (*H. Siválensis*, Nobis, a new species characterized by having six incisors in either jaw;) it was very rare.

*Northern Dob, Sept. 15, 1835.*

IV.—*Horary Observations of the Barometer, Thermometer, and Wet-bulb Thermometer, made at Calcutta on the 21st and 22nd of December, 1835, by Mr. H. BARROW, Astr. and Math. Inst.-maker to the H. C.*

[Having ourselves inadvertently omitted the hourly observations appointed by the Meteorological Association at the Cape to be taken on the above day, we are most happy in being able to supply the omission from Mr. BARROW's register. As the Barometer registered monthly at the Assay office stands .014 higher than Mr. B.'s, that quantity must be added to the Bar. indications at 32° (in col. 7) to produce an accordance.—ED.]

The barometer and wet-bulb thermometer were in a large room to the north, the doors and windows of which were open during the whole time. In the reductions\* .030 has been used as the constant for capillary attraction, and it is only necessary to add that the barometer is of the mountain construction, with a screw at the bottom to bring the surface of the mercury to zero.

(Calcutta mean time.)

1835. Date.	Hour.	Barome- ter.	Attach- ed Ther- mome- ter.	Wet-bulb Thermo- meter.	Exter- nal Thermo- meter.	Barome- ter re- duced to 32°.	Depression of Wet- bulb Ther- mometer.	Obser- ver.
21 Dec.	6 A. M.	30,006	65,0	63,0	55,0	29,937	2,0	H. B.
	7	,024	62,2	61,0		,963	1,2	E. B.
	8	,038	64,0	62,0	62,0	,972	2,0	H. B.
	9	,058	66,7	63,0	66,0	,993	3,7	
	10	,070	68,3	63,9	69,5	,991	4,4	
	11	,054	69,8	64,0	71,6	,971	5,8	
	Noon.	,030	70,1	63,9	72,2	,946	6,2	
	1	29,990	70,9	62,5	73,1	,903	8,4	
	2	,974	71,1	62,0	73,2	,887	9,1	
	3	,972	71,6	62,2	73,5	,883	9,4	
	4	,972	71,0	62,1	72,0	,885	8,9	
	5							
	6	,989	69,2	63,7	66,2	,907	5,5	
	7	30,012	68,0	64,5	64,0	,934	3,5	
	8	,028	67,0	64,5	63,1	,953	2,5	
	9	,037	67,0	64,0	62,0	,962	3,0	
	10	,040	66,3	64,0	60,8	,967	2,3	
	11	,030	66,0	63,5	59,5	,958	2,5	
	Midnight.	,016	65,4	63,0	59,1	,946	2,4	
22nd.	1							
	2	,000	65,0	63,0	58,0	,931	2,0	
	3	29,984	64,0	62,0	58,0	,918	2,0	
	4	,982	64,0	62,0	57,0	,916	2,0	
	5	,986	62,8	61,8	57,0	,924	1,0	E. B.
	6	30,012	62,9	61,5	57,0	,949	1,4	
	7	,016	62,2	61,0	57,2	,955	1,2	
	8	,036	63,2	61,8	61,0	,972	1,4	H. B.
	9	,064	67,0	62,0	66,9	,989	5,0	
	10	,068	69,1	63,5	70,5	,987	5,6	
	11	,040	70,5	63,0	73,0	,954	7,5	
	Noon.	,020	71,9	63,0	74,0	,930	8,9	
	1	,000	72,2	63,0	75,0	,909	9,2	
	2	29,980	72,1	63,0	75,3	,890	9,1	
	3	,968	72,9	63,9	75,3	,875	9,0	
	4	,972	72,3	63,0	73,5	,881	9,3	
	5	,977	71,9	63,0	71,0	,887	8,9	
	6	30,000	70,5	63,6	67,5	,914	6,9	

\* Of column 3, but not of column 7, which is fortunate, as we do not apply any correction for capillarity in our own register.—ED.

V.—*Proceedings of the Asiatic Society.**Wednesday Evening, the 6th January, 1836.*

The Honorable Sir EDWARD RYAN, President, in the chair.

Sir CHARLES D'OYLY, Bart. ; E. A. BLUNDELL, Esq. and Dr. H. FALCONER, proposed at the last meeting were duly elected members.

The meeting then proceeded to the annual election of office-bearers, when by scrutiny of names,

The Rev. Dr. MILL, W. H. MACNAGHTEN, Esq. Sir J. P. GRANT, and Sir B. MALKIN, were chosen Vice-Presidents for the ensuing year ; and Messrs. H. T. PRINSEP, J. R. COLVIN, C. E. TREVELYAN, C. H. CAMERON, D. HARE, RAM COMUL SEN, Captains FORBES and PEMBERTON, and Dr. PEARSON, members of the Committee of Papers.

The Secretary communicated the results of the past year's proceedings.

The number of new members added to the list in 1835 had been,

Ordinary members, ..... 28

Associate members, ..... 4

Honorary members, ..... 5

The loss by death, one; by departure to Europe, three; and withdrawal, one; in all, ..... 5

The financial operations of the year were as follows :—

PAYMENTS.		R.	A.	P.
To House Establishment and contingencies from 1st Nov. 1834, to 30th Nov. 1835, .....	2,868	8	10	
To Salary of Curator, and Museum contingent, from 1st May to 30th Nov. 1835, .....	1,478	3	4	
To Copies of the Journal supplied to members to 31st Dec. ....	1,056	0	0	
To Printing 500 copies of Index, ..	1,210	0	0	
To Ditto, 400 ditto, catalogue of Library Asiatic Society, .....	240	0	0	
To Binding charges, .....	489	10	0	
To Building Repairs, .....	1,175	8	9	
To Purchase of a Cabinet, .....	100	0	0	
To Balance in Bank of Bengal, ....	380	15	2	
Sa. Rs.		8,998	14	1

RECEIPTS.		R.	A.	P.
By Balance of last year's account, .....	3,101	10	4	
By Quarterly Collections and admission fees, realized, .....	5,157	0	0	
By two Dividends on the estate of Mackintosh and Co. ....	717	12	9	
By Sale of Researches, .....	22	7	0	
Sa. Rs.		8,998	14	1

Subscriptions due (partly irrecoverable,) .....	R. A. P.
Interest of Govt. Paper not drawn, .....	2,436 0 0
	1,417 1 11

thus leaving an available balance, without encroaching on the capital stock, of about 3,000 rupees to meet the expences of the current year, besides the quarterly subscriptions, which by a resolution of the 6th November will henceforth be collected in Company's rupees.

The separate account of the *publication of Oriental works* from the date of their transfer from the Committee of Public Instruction was as follows :

PAYMENTS.		R.	A.	P.
To Pundits for correcting press, ..	139	0	0	
To Maulavis for ditto, .....	217	0	0	
To Binding charges, paper, &c. ....	100	10	9	
To Printing prospectus, &c. ....	21	8	0	
To Postage, .....	38	15	0	
To Freight and Package, &c. ....	46	2	8	
		563	4	5
To Printer's bills, due to 31st Dec. 1 from Aug. to 30th Oct. ....	2,623	9	3	
2 from 1st Nov. to 31st Dec. ....	1,069	7	6	
3 for binding and covers, .....	454	0	3	
Total, Sa. Rs.		4,710	5	5

RECEIPTS.		R.	A.	P.
By Sale of Sanscrit Books, .....	584	0	0	
By Ditto of Arabic ditto, .....	584	8	0	
		674	8	0
By Subscriptions not collected, for works delivered to the parties, ..	7,403	0	0	
Total, Sa. Rs.		8,077	8	0

leaving a profit of Sa. Rs. 3,367 2 7 upon the year's operations, to meet the current printing expences, in addition to the chance of further sale of the works now completed.

The ordinary publications of the Society during the past year, had been confined to the Index of the first 18 volumes of Researches, and a new edition of the Library Catalogue.

On the 6th May, it was resolved to give additional attention to the Society's museum of Natural History. A Curator and establishment were appointed, and measures were taken to accommodate the museum of antiquities, models, images, &c. in the gallery around the staircase, leaving the lower suite of apartments entirely open for objects of Natural History.

To the gallery also was added the fine collection of pictures, munificently presented by the sons of the late Mr. HOME, one of the oldest members of the Society. These alterations and the preparation of Mineral Cabinets had enhanced considerably the year's expences, but the good effect had amply compensated. To the museum of fossil remains, some splendid additions had been conferred by Colonel BURNEY, Colonel COLVIN, and Mr. DEAN, and the collection of recent Osteology and of birds had been properly arranged and classified. A catalogue raisonnée had simultaneously been prepared by the Curator which would hereafter be submitted to the Committee of Papers for publication. In the mean time the strenuous assistance of members and friends of the institution was solicited to render the Society's museum worthy of public attention.

The resolution of the Government to make over the library of the College of Fort William to the "Public Library" lately instituted in Calcutta was coupled with a reservation of all the works exclusively oriental of which it is known that the College possesses a very extensive and valuable collection, comprising the whole library of TIPPUSULTAN. These, it was generally understood, the Government would be willing to transfer to the Asiatic Society should a request be expressed by this body to obtain them. As their possession would necessarily involve an increase of establishment, the Committee of Papers had hitherto hesitated making any application on the subject, but it was evidently desirable that such an opportunity of enriching its collection should be hailed with eager desire by a body devoted to the cultivation and study of Indian literature and history.

#### *Library.*

Two books in manuscript and six maps in the Burmese character, together with thirteen sketches and maps in the Assamese character were presented by Colonel G. COOPER, 34th Regt. N. I.

The Indian Journal of Medical Science, No. 25—*by the Editors.*

The Meteorological Register for Nov., 1835—*by the Surveyor General.*

On the salutary effects of the Convolvulus Nil upon the human constitution. M. S.—*by G. Cooper, Esq. the Author.*

A Prospectus of an intended publication "*Corpus Inscriptionum Indicarum*," by M. EUGENE JACQUET, Paris, was submitted for the information of members, and intending subscribers.

[Published on the cover of the November number.]

#### *Museum.*

One bow, a bird-cage, eleven arrows of sorts, and a specimen of the copper coin in use amongst the Choárs; together with an Assam arrow-head for killing tigers, were presented by G. COOPER, Esq.



A bit of petrified tamarind from Triewcurry on the Coromandel Coast, and a vulture, (*Vultur Ponticerianus*,) and a Mandarin's cap, were presented by Dr. L. BURLINI, for T. F. DE CRUZE, Esq.

A Pavooeye (*Acridotheres Malabaricus*) was presented by Mr. J. STEPHENSON.

Read a letter from J. BELL, Esq. forwarding for inspection an animal called "the Slow Lemur" described in the 4th volume of the Asiatic Researches, by the late Sir WILLIAM JONES, and giving some further particulars of his habits.

#### *Literary.*

The Secretary apprized the meeting that he has received from Mr. W. H. SMOULT, the box of papers of the late Mr. MOORCROFT, which were in possession of the late W. FRASER, Esq. and which he was willing to place at the disposal of the Society, on the conditions expressed by the deceased: viz. that any profit accruing from their publication should go to the benefit of Mr. MOORCROFT's relatives in England.

The Society entirely concurring in this view resolved, that they should be immediately forwarded to Professor WILSON in England, to be made use of along with the former manuscripts, on the conditions specified.

A letter from the Vicar Apostolic of Cochin China, was read, requesting the Society to forward the specimen of the Dictionary, which he regretted to hear could not be printed in Calcutta, to the Oriental Translation Fund in England, in case that body should be inclined to patronize its publication.

A letter was read from Captain C. M. WADE, transmitting a second memoir by Mr. CHARLES MASSON, on the ancient coins discovered at Beghrám in the Kohistan, at Jelálábád and Kábul.

The memoir had been detained in Capt. WADE's possession, since the month of June last, in consequence of some official correspondence with Col. POTTINGER to whom the coins to which it relates have been finally forwarded for the Bombay Government.

The present memoir adds the names of DIOMEDES, PALERKOS, ALOUKENIS (?) to those already known, and gives some valuable information on the sites of the *Alexandria ad calcem Caucasii*, &c. It is published at length in the present number.

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*Wednesday Evening, the 3rd February, 1836.*

Sir EDWARD RYAN, President, in the chair.

Lieut.-Col. J. COLVIN, Engrs., Lieut.-Col. L. R. STACY, JOHN NEAVE, Esq. C. S., and Lieut. A. CUNNINGHAM, were proposed as Members by Mr. JAMES PRINSEP, seconded by Sir EDWARD RYAN.

Rájah VIJAYA GOVINDA SINGHA Behadur of Purnea was also proposed by Mr. JAMES PRINSEP, seconded by Koomar RADHACANT DEB.

Read, a letter from Mr. E. A. BLUNDELL, acknowledging his election as a Member of the Society.

Read the following letter from His Highness Prince ESTERHAZY, Ambassador of His Imperial Majesty the Emperor of Austria at the British Court :

"London, August 4, 1835.

"SIR,

"In reply to the letter you addressed to me on the 25th January last, I have the honor to acknowledge the receipt of the boxes containing each twenty-five copies of a Tibetan Dictionary and Grammar, prepared for publication by the Hungarian Traveller Mr. ALEXANDER CSOMA KÖRÖSY, and printed at the expence of the British Indian Government, under the auspices of the Asiatic Society.

"These fifty copies being destined by Mr. KÖRÖSY to be presented by the different public Institutions of His Imperial Majesty's dominions, I lose no time in assuring you, that the learned Author's intentions shall be faithfully fulfilled.

"The enclosed letters and the Oriental works you have sent to the Antic Councillor VON HAMMER, have also been forwarded to their destination.

"I have not failed to inform my Government of the liberality with which the Indian Government has replaced the sum of 300 ducats, transmitted through this Embassy to Mr. CSOMA DE KÖRÖS, which had been lost by the failure of Messrs. ALEXANDER and Co., and anticipating its intentions, I seize with great pleasure this opportunity to express to you, and through your means to the Indian Government, as well as to the Asiatic Society, the high sense I entertain of the kind protection afforded to my learned countryman in His Britannic Majesty's dominions in India. Allow me to offer my sincerest thanks for such generous conduct.

"I have the honor to be, &c.

"ESTERHAZY."

Copy of this letter was directed to be communicated to the Government and to Mr. CSOMA KÖRÖSY, who left Calcutta a short time since on a tour through Tihut and to the west of India.

Read a letter from H. CHAMIER, Esq., Chief Secretary to the Govt. of Fort St. George, directing that the Sixty Copies of 4th, 5th, and 6th volumes of *Fatawá Alemgiri*, subscribed for by the Madras Govt. should be forwarded, and enclosing remittance for the same.

Also similar letters from the Register of the Sadar Dewaní, and the Secretary of the College Council of Fort William.

#### *Library.*

Read a letter from F. MARCET, Esq., Secretary to the Société de Physique de Geneve, forwarding vols. 5 and 6 of their Transactions for presentation to the Society, and requesting an interchange of publications.

Read a letter from M. BROUSSE, Secretary to the Royal Academy of Arts, Sciences, &c. at Bordeaux, acknowledging the receipt of vols. 17 and 18, *Asiatic Researches*, and of a copy of M. CSOMA DE KÖRÖS's Tibetan Dictionary and Grammar, and forwarding for presentation to the Society, a copy of its Transactions from 1819 to 1834, inclusive, 5 vols. handsomely bound.

The Indian Journal of Medical Science, Nos. I and II, for 1836—by F. Corbyn, Esq.

Report on the State of Education in Bengal, presented by Messrs. WILLIS and EARLE, on behalf of Rev. Mr. ADAM.

Two copies of a Sketch of the Solar System, translated into Bengálí, by Mahá Rájah KALI KISSEN Behadur, and presented by the translator.

Meteorological Register for December, 1835—*by the Surveyor General.*

*Museum.*

The Secretary presented on the part of his Excellency General BHIMA SINHA, Minister to the Rájah of Nepál:

Two elaborate drawings of Kathmandu, and of a temple and bridge in the hills. A richly ornamentally *Kukri* and *Khonta*: two large elephant's tusks, and three pods of musk.

A model as large as life, of a native carrying a bullock on his shoulders was presented by *Dr. F. Corbyn.*

*Literary and Antiquities.*

The Secretary read the following extracts from the correspondence of Mr. VIGNE, from little Tibet and from Cashmír, of which valley this traveller is stated to have made a beautiful series of drawings, and an accurate panoramic view, which will be much prized in Europe.

*" Iskardo, 10th September, 1835.*

" I have now been in this very wild and extraordinary place four days, and am pleased with every thing. I set off from Cashmír by boat to Bundurpur, seeing every thing done myself to prevent delay, and took leave of the Governor about 12 o'clock. We had a merry glide of it till night, when the mosquitoes became exceedingly numerous and troublesome; arrived at Bundurpur on the great lake the next morning, and heard the agreeable intelligence that a mounted guard of 10 men were awaiting my arrival in AHMAD SHAH's frontier. I spent the rest of the day in a visit to the Shumladier hill, and the next morning we were fairly off. At that station I was joined by NASIM KHAN, the same man that had eaten your salt for a month and some days, with a letter from AHMAD SHAH. He told me he had been waiting three days in the neighbourhood, not liking to make his appearance among the Sikhs. I like the man much, he is very intelligent and amusing. What a glorious view we had on the second morning, two-thirds of Cashmír and towards Tibet, one mountain in particular of immense height, totally covered with snow from the shoulders upward, named " Diarmul."

" In three days we reached Guress, a very pretty valley, a little higher than Cashmír, entirely surrounded by the loftiest mountains, but bare; merely growing back wheat, vetches, and barley. After leaving Guress, we passed a place which a few men could defend against an army; where the Sikhs and Tibetans fought two days. Further on after passing over a most desolate country, I was met by AHMAD SHAH's son. I had heard there were some marauders in the neighbourhood, but did not really imagine there was any truth in the account. However, the young Rájah, a very intelligent young fellow, assured me there were, and that his father had sent him to protect me. Imagine the wildness of this scene. Discordant but not altogether unmilitary music gave notice of his approach, and at last, he appeared with some forty sepoys, and led horses. The next morning, we marched in company with him, while the approach of the thieves was hourly expected. They had but one way to come, and when we arrived near the scene of action, I observed parties stationed in different places on the mountains, to prevent all escape. Suddenly an alarm was sounded, and gave notice of their

approach, and the thieves were soon surrounded, and cut up. AHMAD SHAH was there in person. I met him on the field of battle. He said he was so happy at having destroyed the robbers, and seeing me there, that if he were at Iskardo, he did not know what he should do to manifest his joy. We all sat down in a large ring. His sepoy's shewing their wounds, and I administered pills, to keep off fever. Of the thieves some returned, 72 killed, 15 escaped; but I don't think there were so many. They treated the wounded men horribly. The enemy came from the neighbourhood of Peshaur, and were driving off men, women, and cattle. I am delighted with the old Rājāh. He appears to have some excellent English ideas about him, and enjoyed the scene amazingly. The book, said to have been written by the old Missionary, does not, he assures me, exist. He shewed me an Armenian Testament that he had bought of some pedlar, which probably gave rise to the report. His faith in the theory of his descent from ALEXANDER is strong. He talks freely of every thing in and about the country, and has sent out men to procure me all kinds of curiosities. We make an excursion to a hot spring on the road to Yarkand in a day or two, and shall have some shikār, &c. I shall quit this extraordinary place, (a vale partly desert, washed by the Attock, a noble stream, quarter mile wide, some 15 miles long, and surrounded by bare rugged mountains on every side, of vast height,) in about 12 days or so: the snow will then begin to fall. I expect a cold march of it. He is very proud of his rock crystal, of which I can bring away as much as I please. As to the productions of the valley, I am making myself fully master of them. He refuses no sort of information. The fort is on a rock covered with alluvial soil, raised in the very centre of the valley, from the bed of what was once most likely a lake. In size, shape, and appearance, washed on two sides of the river, it bears some resemblance to Subathu; as to the works, a few shells for the wood, and round shot for the stone, would destroy them in a few hours. It would be ridiculous (certain death) to attempt going to Yarkand. Since MOORCROFT was at Ladakh, they have got the picture of an Englishman, so I am assured, painted on the wall, that all who see one may know him. Yarkand is about a month's march—a harkara could go in 12 days. I am going to a classical sort of equestrian sport in a day or two, such as I was happy to hear remarked was played in the time of ISKANDER. It had struck me that the course was precisely the shape of the course of CARACALLA at Rome."

*"Cashmir, 23rd October, 1835.*

"Here I am safe and well; arrived yesterday after a very severe march of 25 days from Iskardo, over as rough roads, if they deserve the name, as can be seen any where. I have with me four Yáks and all kinds of things. I hope to start hence in about 10 days, and shall come the shortest road to Láhor. So pray oblige me by making some arrangements about the Indus. I should like to hire a boat, men, &c. It must be big enough to carry my Yáks. They are not tall but heavy. I expect Baron HUGEL here in two or three days, and suspect I shall have a very narrow escape of stopping another year in India, but must do every thing I can to get off in time."

*"Cashmir, 30th October, 1835.*

"I wrote to you a few days ago, to mention my safe return, but forget to send the enclosed inscriptions. Pray post them off at your earliest convenience to CSOMA DE KÖRÖS, author of the Tibetan Dictionary, or some person competent to undertake their examination and request a translation, if possible, and soon; with my compliments. I began my panoramic view from the Tukht



yesterday, the weather continues fine. There is nothing new to communicate, excepting that I hear the Baron is coming the Jammú road, and cannot be far off now. I must be at Bombay by the middle of January."

Of the inscriptions alluded to in the last extract, one at least is in clear Tibetan characters, and will be doubtless easily decyphered by M. CSOMA DE KÖRÖS, to whom they will be sent at Malda.

The Baron HUGEL had deviated from his proposed tour after ascending the pass from Bundurpur to Iskardo into little Tibet, on account of the advanced season; he had since joined M. VIGNE at Lâhor.

The Rev. Mr. BATEMAN, in a letter from Bombay, communicated a facsimile of an inscription, supposed to be in Cufic characters, found by Captain THOMAS JERVIS, at the village of Wara, in the Southern Konkan; the original stone of which he had presented to the Bombay Literary Society.

The inscription is apparently in the elongated form of Nâgarî character, found on the coins of the *Saurashtra* group. (See Journal, vol. iv. Pl. XLIX. p. 684,) and may in time be made out.

Mr. TRAILL, Commissioner of Kemaon, presented further facsimiles of the inscriptions at *Bagés war*, near Almorah, which were made over to the Rev. Dr. MILL, V. P. for examination.

Read an extract of a private letter from Lieut. A. CUNNINGHAM, Engineers.

Lieut. C. pointed out, in reference to the motto ΑΡΔΟΧΡΟ on one of General VENTURA'S coins (fig. 9 of Pl. XXXVIII. vol. iv.) that the same name might be traced on the coin depicted as fig. 6, Pl. I. vol. xvii. of the *Researches*, of which he possessed a more legible duplicate: thus forming the most perfect link between the Indo-Scythic and Canouj coins. The cornucopia is borne by both the standing and sitting females of this type.

An anonymous address "to the Members of the Asiatic Society," signed "VERITAS," Hobart Town, Vandieman's Land, September, 1835, developed a new theory of the origin of the *Yugas* of the Hindus, and called upon the Society to examine the subject more closely.

Whatever may be thought of the address, which from its want of authentication cannot be noticed, it is satisfactory to find the Society's *Researches* made the subject of study in the new colony.

#### *Physical.*

Lieut.-Col. COLVIN presented on the part of Lieutenants BAKER and DURAND, three fossils from the Dádapur collection, of great interest.

1. Part of the jaw of a rhinoceros, with two milch teeth attached.
2. The molar tooth of a camel; of which new fossil genus, they possess now the entire head. (See Journal for December, 1835.)
3. A very distinct head of a fish.

To these Colonel COLVIN added, on his own part, four fragments of the fossil shell of a tortoise, of gigantic dimensions.

The same officer presented on the part of Lieutenant BAKER, a series of the fossil shells from the stratum of blue marl, underlying hard sand, gravel, and yellow sand, inclined at an angle of 45° in the low range of hills at the head of the Delhí Canal. A sketch of the strata accompanied.

A note from Mr. B. H. HODGSON called the Society's attention to a paper

and drawing of a new species of *Columba*, submitted to the Society several years since, of which by some inadvertence no notice had been taken.

A duplicate of the article was now furnished.

It appears that the bird is described as new by the Zoological Society in 1832, thus depriving the author here of the priority of discovery and publication.

Specimens of *Cinnyris Mahrattensis* and *Rynchœa Capensis*—presented by M. BOUCHEZ.

A specimen of *Raia Thouriniana*—presented by Captain LLOYD, Indian Navy.

Specimens of *Squalus Zygoena* and *Maximus*—presented by Mr. F. SHAW, of the Surveying Vessel *Flora*.

A collection of skins of birds, of snakes, fishes, Crustacea and Mollusca—presented by Lieut. MONTRIOU, Indian Navy, and Mr. F. SHAW.

This collection was received only a few days ago but the following genera and species have been determined.

*Birds*, the Genera, *Dicrurus*, *Ardea*, and *Carbo*: *Snakes*, *Dryinus* and *Hydrophis*: *Fishes*, *Trichiurus*, *Polynemis*, *Golieides*, *Pleuronectes*, *Tetradon*, *Clupea*, *Chanda*, and *Pimelodes*: *Crustacea*, *Sepia*, *Loligo*, and *Monoculus*: *Shells*, *Balanus*, *Pholas*, *Psammotea*, *Arca*, *Cardium*, *Cytherea*, *Venus*, *Cerithium*, *Turritella*, *Pyrula*, *Nerita*, *Neritina*, *Ampullaria*, *Dolium*, *Cassis*, *Oliva*, *Rotella*, and *Calyptrea*.

Of these genera, the following species have been ascertained: *Dicrurus Indicus*, *Trichiurus Argenteus*, *Polynemus Paradiseus*, *Golieides Rubicunda*, *Pleuronectes Pan*, *Tetradon Patoca*, *Clupea Aclara*, *Chanda Ruconius*, *Pimelodes Etor*; *Monoculus Polyphemus*; *Balanus Striatus*, *Pholas Orientalis*, *Cerithium Telescopium*, and *Sulcatus*; *Pyrula Vespertilio*, *Dolum Pomum*, and *Cassis Areola*.

The Python *Amethystina*, presented some months ago by Mr. CHENE, died during the very cold weather of last month. He changed his skin at the beginning of December, and refused to eat afterwards; remaining in a semi-torpid condition till the coming on of the (for this country) extreme cold of the middle of January.

A collection of skins of birds—presented by W. D. SMITH, Esq.

A memoir by Messrs. FALCONER and CAUTLEY, on the peculiarities of two new species of fossil Hippopotamus, found in the *Siwālik* range, was read.

The great distinction between the Hippopotamus of the *sub-Himālayas* and the fossils described by CUVIER, and also the existing animal of South Africa, consists in its having six incisor teeth, in lieu of four. This marked difference has led the authors to a subdivision of the genus into *Hexaprotodon* and *Tetraprotodon*. The former comprising the two or more varieties hitherto discovered in India, in a fossil state. Their account will appear in the outcoming volume of the Physical Researches.

A series of Geological specimens from the Shekhāwāti country, were presented by Mr. FALCONER.

A memoir on a Geological collection made in the country between Hyderabad and Nagpur, and presented to the Society by the collector, Dr. MALCOLMSON, with a descriptive map, was submitted.

[This will shortly be published in the Journal.]

*Meteorological Register, kept at the Assay Office, Calcutta, for the Month of January, 1836.*

Day of the Month.	Observations at 10 A. M.							Observations at 4 P. M.				Register Thermometer Extremes.		Rain.		Wind.		Weather.	
	Standard Barometer, at 32°.	Wet Baro- meter, at 32°.	Aqs. Ten. deduced.	Thermome- ter in air.	DIFF. or M.	Leslie's Dif.	Hygrom.	Hair Hy- grometer.	Wet Bar. at 32°.	Standard Bar. at 32°.	Thermome- ter in air.	T. Depress.	Leslie's Dif.	Hair Hy- grometer.	Cold 2 ft. above Ground.	Heat in sun.	Morning.	10 A. M.	4 P. M.
1	29.020	.322	0.606	67.0	10.0				.930	.917	71.2	11.5			51.8	82.2	n.	clear.	clear.
2	.008	.322	0.606	68.5	5.1				.917	.917	70.2	5.1			52.2	85.0	ne.	hazy.	cumuli.
3	.056	.370	.686	69.5	5.3				.986	.986	73.1	11.1			52.3	85.4	ne.	do	clear.
4	.056	.370	.686	69.5	5.3				.986	.986	70.2	5.1			52.3	85.4	ne.	do	clear.
5	.042	.332	.632	68.3	4.8				.932	.932	71.1	6.7			52.8	85.3	ne.	do	clear.
6	.019	.347	.672	68.3	5.7				.914	.914	70.5	8.8			51.5	82.2	ne.	hazy.	cumuli.
7	.020	.347	.672	68.3	5.7				.914	.914	70.5	8.8			51.5	82.2	sw.	clear.	clear.
8	.032	.306	.636	66.6	8.4				.912	.912	69.5	8.6			50.1	76.3	w.	fine.	do
9	.078	.441	.630	65.6	8.9				.924	.924	67.7	9.9			45.4	76.4	nw.	clear.	do
10	.018	.421	.620	63.7	9.2				.900	.900	63.5	5.3			46.5	77.4	n.	do	do
11	.048	.421	.620	63.7	9.2				.914	.914	67.3	10.5			44.2	79.1	n.	do	do
12	.017	.341	.639	65.9	9.9				.924	.924	67.3	10.5			44.2	79.1	n.	do	do
13	.080	.341	.639	65.9	9.9				.924	.924	67.3	10.5			44.2	79.1	n.	do	do
14	.036	.388	.638	65.6	7.6				.918	.918	67.3	10.4			50.3	83.2	n.	do	do
15	.022	.444	.622	65.7	8.6				.946	.946	67.3	9.0			46.3	81.4	n.	do	do
16	.088	.436	.590	64.1	8.8				.928	.928	66.3	13.5			47.5	76.2	n.	do	do
17	.120	.406	.560	62.9	10.9				.905	.905	65.5	13.5			43.2	74.8	n.	do	do
18	.056	.406	.560	62.9	10.9				.949	.949	63.7	13.7			39.8	73.8	n.	do	do
19	.018	.549	.540	62.3	8.1				.949	.949	63.7	13.7			40.6	75.8	n.	do	do
20	.008	.436	.572	63.3	7.3				.906	.906	65.2	12.3			41.4	80.8	n.	do	do
21	.026	.436	.572	63.3	7.3				.912	.912	67.0	9.3			45.4	84.7	n.	do	do
22	.043	.436	.572	63.3	7.3				.912	.912	67.0	9.3			45.4	84.7	n.	do	do
23	.043	.436	.572	63.3	7.3				.912	.912	67.0	9.3			45.4	84.7	n.	do	do
24	.063	.440	.637	65.6	5.8				.983	.983	70.5	14.3			46.2	83.8	n.	do	do
25	.086	.440	.637	65.6	5.8				.983	.983	70.5	14.3			46.2	83.8	n.	do	do
26	.085	.458	.627	65.7	7.7				.996	.996	72.0	7.5			47.0	82.5	n.	do	do
27	.099	.460	.639	65.9	6.3				.979	.979	69.1	10.2			49.6	86.2	n.	do	do
28	.111	.416	.625	63.5	4.7				.984	.984	69.1	10.2			45.9	83.7	n.	do	do
29	.128	.426	.702	69.3	2.6				.984	.984	72.9	7.3			46.8	86.8	n.	do	do
30	.135	.386	.749	70.7	6.7				.984	.984	73.1	6.8			51.2	89.5	n.	do	do
31	.143			70.7	7.4				.984	.984	73.1	6.8			57.0	89.0	n.	do	do
Mean	29.060	0.417	0.641	65.9	7.6				.956	.956	69.8	10.0			48.3	81.5			

This has been the coldest month experienced in India for a very long period. On the night of the 18th, ice was naturally formed in the Botanical garden—it was plentiful in Tirhut and other places to the north.





